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TUMOR OF THE HYPOPHYSIS IN A CASE OF ACROMEGALY *

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The importance to health of the integrity of the pituitary gland is now unquestioned. Experimentalists and clinicians are busy elucidating its physiology and pathology, in order that rules may be formulated for the diagnosis and treatment of its various disorders. Meanwhile surgeons are perfecting new practical methods of approach to the hidden gland at the base of the brain, thus robbing hypophysectomy of many of its dangers. The literature of the past few years has been enriched by a number of valuable articles and monographs on the theoretical and practical aspects of hypophyseal disorders, which must be consulted by those wishing to get a general view of the subject. My contribution is the report of a case of acromegaly with post-mortem findings, which I had the privilege of studying for about seven years. I shall attempt, if possible, to correlate the features of this case with the latter-day teachings on the hypophysis.

REPORT OF CASE

History.—The patient, a Canadian lake captain, 49 years old and unmarried, was first seen in September, 1903. Father died of some lung trouble at 71; the health history of other members on this side of the family is unknown. The mother, in good health at 79 years, stated that her parents died at 82 and 85 respectively; a sister had a "stroke" at 70 and died several years later; her other children are healthy and she never knew of any nervous diseases in her entire family. Birth and early physical and mental development of patient were normal. With the exception of an attack of tonsillitis when 2 years old and of two attacks of lumbago during adolescence, there were no complaints previous to the present trouble. He always had good habits; never smoked nor drank to excess. Though sexually moderate, he did not escape a mild case of gonorrhea and, later, a chancroid with bubo; but he never acquired syphilis. During his boyhood and early adolescence he was tall and slim. Figure 1 shows him at 35. At this time he was still within normal proportions with reference to height and weight. Soon after this picture was obtained, however, he began to gain in weight, and we discover in him the fully-developed acromegaly type at the age of 44 (Fig. 2).

Present Complaint.—At my first examination the family were agreed that the disease had not lasted over eight years. The patient placed much emphasis on two incidents which occurred shortly before the development of his symptoms, and he holds these responsible for his troubles. First, during a stormy voyage on the lake he was overtaken by fright and confusion of such nature that he was obliged to yield the command of the vessel to his first officer. The second incident which he regards as the principal cause of his disease was an infected vaccination wound on his left arm, from which he suffered in 1894. Shortly after the infection had subsided, he noticed peculiar nervous "spells," during which he held his breath and snored for a few seconds; there was said to have been some discoloration of the lips, but no frothing at the mouth during these attacks. Consciousness was never lost during any of the seizures. In the autumn of 1894 the attacks changed in character, not only motor, but also sensory and vasomotor phenomena occurring; added to the snoring and pause in respiration there developed "creepy," chilly feelings, followed by hot flushes and sweatings. Occurring at long intervals in the beginning, the "spells became more frequent later, until toward 1897 major attacks of epilepsy also made their appearance. During a period of seven months, in 1895, the patient found himself in a condition of physical and mental inertia. He was somnolent, apathetic, could not recognize familiar objects and persons and was unable to attend his natural wants. Slowly he emerged from this lethargy; he began to take short walks in the open and to care once more for his person. At this time and subsequently an insignificant physical or mental effort was usually sufficient to bring on a state of exhaustion. In 1896 many nervous spells of the variety already described occurred, which were modified to the extent that each attack was either followed or initiated by a smacking of lips and trembling of face, usually accompanied by a lacrymose outcry of "Oh my, oh my!" In 1897 the first major attack of epilepsy was noticed; there was the short tonic, followed by a longer clonic convulsion, with frothing at the mouth, biting of the tongue, and complete relaxation of the vesical sphincter. Similar attacks continued to recur mostly during the early morning hours. They were always preceded by "creepy," chilly feelings in the fingers; often, however, the latter constituted the entire attack, which then terminated by yawning and profuse perspiration, but without convulsions. A prominent symptom was severe headaches, which have occurred at irregular intervals since the lake accident—for the patient the beginning of his disease. Very intense at first, the cephalalgias became less severe and less frequent toward the end.

Physical Examination.—Patient is about 6 feet tall, presents a clumsy posture and a gait betokening lack of energy. His face is coarse and large, the lower jaw massive and protruding beyond the upper; the lips and nose are thick, the nasolabial folds accentuated. The eyes are deeply set, eyebrows coarse, and supra-orbital arches prominent. While the lower portion of the forehead bulges out considerably, the upper end appears to be retreating; the malar bones are large. The fingers are sausage-shaped and the hands resemble a spade, all the tissues—bones, muscle, fat and skin—being excessively developed. The feet show similar excess in the growth of both soft and osseous structures. Kyphosis is marked in the cervicodorsal region. Both clavicles and the sternum are considerably enlarged. The genitals are under-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

sized and the libido and sexual power are absent. Except for the heart, which shows slight tachycardia, the viscera are normal. The voice is low-pitched, the speech slow, gutteral and monotonous. The tongue, indented by the teeth, is extremely large and fills the mouth almost completely, thereby exciting an increased flow of saliva. The thyroid is not palpable.

At various times early in my observation I found in the urine phosphates, urates and traces of sugar, but no albumin. Somewhat later I failed to detect sugar, and discovered the phosphates only occasionally. Polyuria, polydipsia and polyphagia were symptoms more or less present during the entire

Fig. 1.—Patient at 35, still within the normal growth proportions.

Fig. 2.—Patient at 44. Typical acromegaly appearance.

Fig. 3.—Hypophyseal tumor growing in all directions, more especially on the left side.

course of the disease. A blood examination revealed nothing beyond a slight secondary anemia.

Nervous Examination.—There is no paralysis, tremor or ataxia. The tendon reflexes are reduced in the upper extremities; the knee-jerks are barely elicitable, the Achilles jerks absent. Babinski's toe phenomenon and Oppenheim's foot sign cannot be obtained. The sensory examination reveals negative findings throughout. The special senses show no anomalies. Hearing, taste and smell are normal. An examination for visual disturbances fails to disclose hemiopic or central vision disorders. As I could not prevail on the patient to visit an ophthalmologist for purposes of perimetric and ophthalmoscopic examination, I am compelled to use rough tests for the visual fields, which yield negative findings. Ophthalmoscopically, the optic nerve appears within the normal limits of health, neither congested nor too pale. That the patient has remained an inveterate newspaper reader almost to the end would lend support to the last statement. The pupils react to light and in accommodation, though rather sluggishly.

Mentality.—Forgetfulness, apathy, absence of mental concentration and a puerile state of mind are constant features. The patient is an indefatigable collector of newspaper clippings from the advertisements of quacks and charlatans, who appeal strongly to his enfeebled mind. On certain days he develops attacks of somnolency, which interrupt all serious occupation with the patient. He thinks a Roentgen-ray examination unnecessary and cannot be induced to go to the laboratory.

Subsequent History.—During the two years previous to his death the major epileptic attacks had become rare, but instead the *petit mal* seizures had become more frequent. In addition there developed great difficulty in swallowing, regular choking spells impeding the process of feeding. The troubles of deglu-

Fig. 4.—Optic chiasm, very much attenuated, surrounded on all sides by tumor mass.

tition diminished about three or four months before death, but the patient became more somnolent and weak; the memory was almost a blank; he was childish, confused and unable to answer simple questions. The patient died in coma July 27, 1910, at the age of 56, having been a sufferer from acromegaly for about fifteen years.

Necropsy.—Permission was granted to examine the brain, but none of the other organs. The important finding was a large tumor in the hypophyseal region, which had grown in all directions (Fig. 3). In its continuous growth, the neoplasm had destroyed the posterior clinoid processes and extended upward as well as downward. While the sphenoidal sinuses were also found infiltrated with tumor tissue, the principal mass grew laterally and upward. As a result of this upward extension the optic chiasm had become attenuated and flattened into a cup-shaped structure (Fig. 4), measuring 2 by 1.5 cm. Laterally the neoplasm grew from the sella toward the uncinate gyri, both of which were thus compressed, but especially the left one. Still further extending into the inferior horns of the lateral ventricles, the tumor produced a considerable degree of irritation hydrocephalus,

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which was more marked on the left side (Fig. 5). The irregular mass, with its numerous protuberances occupying the entire interpeduncular space, was of a dirty-gray color and had but little cohesiveness; after a few days' hardening in formalin solution it began to fall apart. It measured approximately 6 cm. in its transverse, 4 cm. in the sagittal and 3 cm. in the longitudinal diameter.

Microscopically there are seen a few groups of deeply staining cells (chromophils) scattered among numerous others that stain but feebly (Figs. 6 and 7), (chromophobes), with colloid masses here and there. Part of the tumor shows irregular rows of cylindrical epithelium, having the typical appearance of secreting cells, with their darkly stained protoplasm to one side and the lighter portion to the other (Fig. 8), a picture resembling a secreting gland. The brain not having been especially prepared for the granular stain, the existence of granule cells could not be ascertained with certainty, though Dr. Dean Lewis, who kindly examined and stained for me some specimens from this tumor, believes that he recognized some of the cells on which he and Benda have laid so much stress. When I first examined the tumor the

Fig. 5.—Bilateral hydrocephalus, more marked on left side. Infiltrating masses seen in left lateral ventricle.

diagnosis of sarcoma was uppermost in my mind, because the growth consisted largely of round cells with little or no stroma. On consulting the literature, however, and especially Benda's and Lewis' writings, I came to the conclusion that the neoplasm belonged to the adenomatous variety of hypophyseal tumor.

Summary.—As a result of a psychic trauma or an infection a male patient at the age of 41 develops symptoms of acromegaly, accompanied by attacks of petit mal epilepsy; somewhat later there are added somnolency, cephalalgias and change of character. Though presenting the classic picture of acromegaly the patient never suffered from any of the usual visual disorders of this disease, such as hemiopia and central scotoma. In the course of time, however, attacks of major epilepsy and uncinate fits supervene and the patient dies about fifteen years after the beginning of the first symptoms, having lived the life of a vegetating automaton for many years. The post-mortem examination then reveals a large adenoma, which had pushed up the optic chiasm, extended into the lateral ventricles and incidentally caused a bilateral hydrocephalus, more marked on the left side.

CONCLUSION

The peculiar distribution and extent of the tumor may explain many of the symptoms in this case. The proliferation of glandular tissue leads one to suppose that there must also be a corresponding increase in the function of such tissue. Assuming with Benda,[1] Lewis[2]

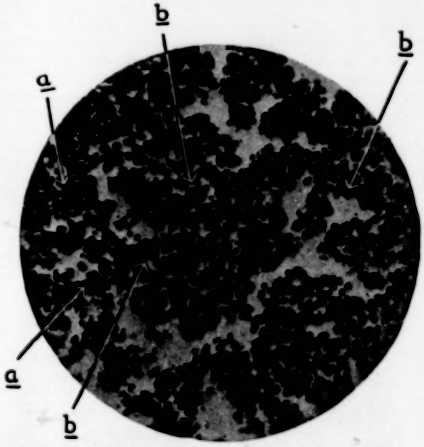

Fig. 6.—Magnified 180 diameters. Tumor consisting of (*a*) chromophobe cells, with few (*b*) chromophil cells interspersed.

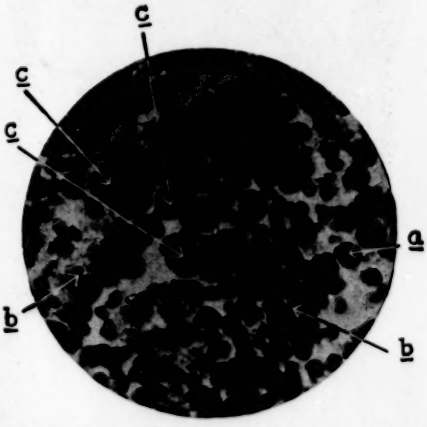

Fig. 7.—Magnified 450 diameters, showing (*a*) large and (*b*) small cells; also (*c*) colloid material.

1. Benda, C.: Beiträge z. normalen u. pathologischen Histologie d. menschlichen Hypophysis cerebri, Berl. klin. Wchnschr., 1900, xxxvii, 1205; Deutsch. med. Wchnschr., 1901, xxiii, 536; Pathologische Anatomie d. Hypophysis, Handb. d. path. Anatomie d. Nervensystems, 1904, p. 1418.

2. Lewis, D. D.: Hyperplasia of the Chromophil Cells of the Hypophysis as the Cause of Acromegaly, with Report of a Case, Bull. Johns Hopkins Hospital, 1905, p. 157; A Contribution to the Subject of Tumors of the Hypophysis, THE JOURNAL A. M. A., Sept. 17, 1910, p. 1002.

and Cushing[3] that the skeletal overgrowth of acromegaly is conditioned by a hypersecretion of the anterior portion of the hypophysis, we certainly had the structures from which such secretions might have been derived. As the tumor continued to grow, the hyperactivity was converted into hypoactivity—the chromophil gave way to chromophobe cells. Then it was that we discovered the existence of adiposity, myasthenia, and loss of sexual power. As may be observed in the microphotographs, the tumor masses consist almost entirely of chromophobe cells, while the chromophil cells—the real secreting structure—seem to have almost entirely disappeared. Apparently there was a stage of immoderate stimulation followed by one of exhaustion. This interpretation harmonizes with the modern teaching on the causation of acromegaly. While the theory of hypophyseal activity receives but scant support from my case, more can be said under the heading of neighborhood symptoms on which Cushing in his monograph

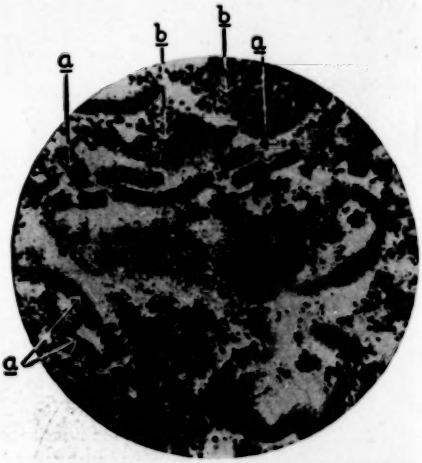

Fig. 8.—Magnified 110 diameters. (*a*) Irregular rows of cylindrical epithelium, resembling glandular structure; (*b*) scattered round cells like sarcoma.

puts great emphasis. We may recall that the patient developed *petit-mal* attacks at first, and, as the tumor continued to grow toward the uncinate gyri, there also appeared attacks which were accompanied by a smacking of the lips and movements as though the patient were tasting some unpleasant substance. These were probably *petit-mal* seizures belonging to the type which Hughling Jackson described long ago as uncinate fits—caused by the extension of the growth to the uncinate convolutions. The attacks of *grand-mal* epilepsy must also be considered as neighborhood symptoms. They were most probably caused by the varying fluid content in the ventricles compressing the brain against the skull, thus producing cortical irritation. To the invasion of the frontal lobe by the tumor must be attributed the mental changes, somnolency and puerile behavior—symptoms frequently noted in acromegaly. The absence of visual disturbances in my case can be explained from the appearance of the optic chiasm, as may be observed in the photograph. The chiasm appears thinned out, but widened; evidently the neoplasm compressed this structure very slowly, thus permitting gradual accommodation to pressure, while the tumor itself showed a tendency to extend laterally, rather than to grow in an upward direction.

A symptom which may throw some additional light, as every such case must, on the interrelationship existing between the various glands of internal secretion, was the complete absence of a thyroid gland in my patient. Possibly in taking up the work of the thyroid, the hypophysis continued to grow and functionate beyond the physiologic needs, with the resulting formation of a large adenoma.

32 North State Street.

3. Cushing, H.: The Hypophysis Cerebri; Clinical Aspects of Hyperpituitarism and of Hypopituitarism, THE JOURNAL A. M. A., July 24, 1909, p. 249; The Functions of the Pituitary Body, Am. Jour. Med. Sc., 1910, xxxix, 473; The Pituitary Body and its Disorders, J. B. Lippincott Company. This excellent monograph contains the recent literature on the hypophysis.

INTESTINAL SAND

REPORT OF A CASE WITH CHEMICAL ANALYSIS OF SAND *

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Laboulbene[1] reported the first case of intestinal sand in 1873. He found a sandy substance in the feces resembling brown or yellow sand, which he believed was of vegetable origin. Since that time there have been many reports of cases in which intestinal sand was associated with one or more clinical manifestations, and attempts have been made to show that the sand was a part of various forms of diathesis.

More recently Myer and Cook[2] studied the literature on the subject and came to the conclusion that intestinal sand was not a part of any clinical entity but that, in their own case, it resulted from the ingestion of bananas. They found that after eating bananas sand invariably appeared in the feces after twenty-four hours and often continued for several days. It came in large quantities at first (from 1 teaspoonful to 1 tablespoonful) and gradually diminished in amount. If the feces were not manipulated too much, the grains were often found in chains. These chains correspond in arrangement and shape to the cylindrical cells in the milk-ducts of the banana. These cells contained highly refractive resin balls or masses, which were suspended in a fluid rich in tannin.[3] They believed that these resin balls were affected by the secretions of the stomach and intestine in such a way that the resin was hardened and an insoluble tannate formed. They were unable, however, to reproduce the sand by artificial digestion or by placing the banana in fecal material.

I have examined many hundreds of stools both in the gross and under the microscope during the past five years and have seen only two cases with intestinal sand. Both of the patients denied having eaten bananas within several months. The stools of many other children, who had eaten bananas, failed to show intestinal sand.

* Presented before the American Association for the Advancement of Clinical Investigation, Washington, D. C., May, 1913.

1. Laboulbene: Bull. de l'Acad. de méd., November, 1873.
2. Myer and Cook: Intestinal Sand: the Banana One of Its Sources, Am. Jour. Med. Sc., 1909, cxxxvii, 383.
3. Bary: Vergleichende Anatomie bei Phanerogamen und Farne, 1877, pp. 153, 160, 451, quoted by Myer and Cook.

GROSS APPEARANCE OF INTESTINAL SAND

Attention is first drawn to the stool by many fine black or brown sand-like particles intimately mixed with the fecal material. The stool may look peppered. In the case which I report the fecal material was soft, brown, smooth, of a foul odor and contained a large amount of vegetable detritus, which could not be identified.

Under the microscope there was a small amount of fat in the form of soaps (the amount was normal). There were no starch granules but a few meat fibers (normal). Scattered through the stool was a large amount of cellulose.

The sand was heavier than the fecal material and was obtained in a relatively pure condition by frequent washing, straining through a sieve, and decantation. It was impossible, however, to separate it entirely from the cellulose remains. It had a brown, sandy appearance and felt gritty between the fingers.

MICROSCOPIC APPEARANCE

Under the microscope it was found to consist of two kinds of sand, one of which was colorless and resembled

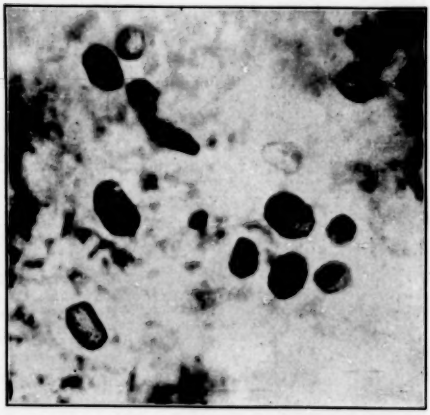

Fig. 1.—Intestinal sand in feces (magnified 62½ times).

calcium or magnesium phosphate, and the other irregular or oval, sometimes crystalline with rough edges and sometimes smooth. The color varied from a light yellow to a beautiful, deep, claret red. The crystals were translucent but not transparent. The grains were hard and brittle, and when crushed under the cover-glass, still retained their crystalline appearance.

CHEMICAL COMPOSITION

Marquery[4] found organic matter 72 per cent., inorganic 28 per cent. Dieulafoy[5] found water 11.25 per cent.; fecal material 22.6 per cent.; phosphoric acid 17.56 per cent.; calcium 26.22 per cent.; magnesium 14.05 per cent.; silica 5.68 per cent. Myer and Cook[2] found moisture 17 per cent.; organic matter 95.8 per cent.; nitrogen (Kjeldall) 2.5 per cent. The inorganic portion consisted mainly of the phosphate of calcium.

4. Marquery: Assoc. française pour l'avancement des sciences, 1879, p. 878.
5. Dieulafoy: Bull. de l'acad. de méd., Paris, 1879.

The sand in my case showed the following analysis:

Nitrogen	3.0 per cent.
Total fat	5.0 per cent.
Ash	17.4 per cent.
Calcium	7.4 per cent.
Magnesium	2.0 per cent.
Phosphates	present
Material soluble in alcohol after hydrolysis (resinous?)	14.0 per cent.

The chemical characteristics were as follows: It was insoluble in hot and cold water, alcohol, ether, chloroform, weak acids and alkalies. Concentrated acids, such as sulphuric acid, partially dissolve the crystals and cause an evolution of gas, which is presumably carbon

Fig. 2.—Intestinal sand. The irregular masses (*a*) are white. The more regular and longer masses (*b*) are claret-colored (magnified about 45 times).

dioxid. It does not give the murexid test and shows no sugar with Benedict's solution. These gross chemical findings agree with those of other observers. Hydrolizing and extraction with 3 per cent. hydrochloric alcohol, such as is used in the estimation of fat in the stools, dissolves all the red color from the sand and leaves behind an amorphous white powder. This powder is soluble in strong nitric acid and reprecipitates on the addition of ammonium hydrate. The solution gives the qualitative test for phosphates.

Fig. 3.—Intestinal sand. Note the pepper-like appearance.

After hydrolysis, the hydrochloric alcohol becomes bright reddish-brown. When it is evaporated, a sticky reddish-brown material is left behind. This material is insoluble in ether, chloroform, petroleum-ether and water. It is soluble in absolute alcohol and precipitated by water. It is possibly some form of resin or amino-acid. Similar materials are often found on extracting the stools of children when no sand is present.

REPORT OF CASE

Girl, aged 9 years. When patient was 1 year old she commenced to have occasional digestive disturbances, during which she lost her appetite, became nauseated and often vomited. She was always extremely cross and irritable during these attacks and occasionally had a slight fever. It was during one of these attacks that the mother noticed for the first time the small brown specks in the stools. A dose of castor oil was given, the patient quickly recovered and coincidentally the specks disappeared from the stools. The frequency of the attacks varied from one week to three months. In December, 1908, at the age of 5 years, the patient had symptoms which were very suggestive of hip-joint disease, though her general condition otherwise was good and did not suggest tuberculosis. There was some pain with use of the joint, and the child walked with a slight limp. Apparatus was applied to protect the hip-joint and worn for several months, after which time it was discarded, because the recovery was complete. In May, 1910, the child was in excellent condition, growing rapidly, and walking without a limp and without aid of the splint.

The cross, irritable spells, accompanied by intestinal sand, persisted up to July, 1912. Since then, the patient has not been seen. Various diets were tried without any influence on the condition. No connection could be found between the appearance of the sand and bananas or any other fruit or vegetable. The sand, the analysis of which was given in the foregoing, was obtained in November, 1908, at about the time the hip-symptoms were developing.

SUMMARY

True intestinal sand may be present when no banana is eaten. The history in the case reported is suggestive of some connection between the sand and the intestinal symptoms. It is impossible to say whether or not the sand bears any etiologic relation to the intestinal or joint-symptoms or whether or not it is of any diagnostic importance.

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THE HISTOPATHOLOGY OF POMPHOLYX*

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Pompholyx was first described, as a form of dyshydrosis, by Tilbury Fox,[1] who was of the opinion that the condition was characterized essentially by "the retention in the follicles of the skin of sweat, rapidly and freely excreted," and believed that the affection bore the same relation to the sweat follicles that acne vulgaris does to the sebaceous glands. Hutchinson[2] who independently recognized and described the disease at about the same time, was opposed to this view, and, basing his argument on the symmetry and the spontaneous appearance and disappearance of the clinical manifestations, and on the fact that the condition was seen most frequently in persons whose vitality had been lowered by worry, overwork and similar agencies, concluded that it was an acute, inflammatory disease of the rete, neurotic in origin. He[3] suggested for it the name "cheiropompholyx."

Robinson[4] of New York first examined the lesions microscopically, and also analyzed the contents of some of the vesicles. The results of his investigations convinced him that the condition bore no relation to the coil-glands or ducts, and, in view of the fact that the feet also were sometimes involved, he proposed the name "pompholyx" for the disorder. Thin[5] confirmed Robinson's findings, and agreed with him and with Hutchinson regarding the probable neurotic origin of the affection. Fox and Radcliffe Crocker[6] published in 1878 their first pathologic report. They found signs of inflammation in the coil-glands, and many of the earliest vesicles, which always formed in the rete, were

Fig. 1.—Lesions on palm at height of attack, Case 1.

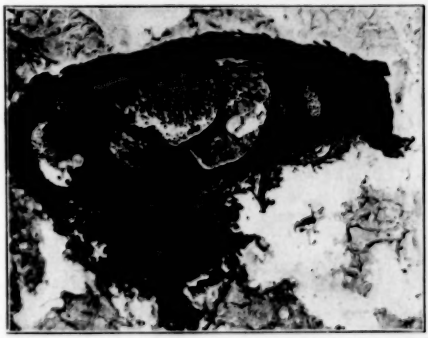

Fig. 2.—Large, multilocular lesion from palm in Case 1.

directly in a line with and interrupted the course of a sweat duct. Later, Crocker[7] obtained some material from another patient, and examined it microscopically. In this case, he found that while a few of the vesicles were interpapillary, and had developed in the course of the coil-gland ducts, more often the cavities were super-

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Fox, Tilbury: Dyshydrosis, Am. Jour. Syph. and Dermat., 1873, p. 1; Clinical Lecture on Dyshydrosis, an Undescribed Eruption, Brit. Med. Jour., 1873, p. 365; Skin Affection Lately Described as Dyshydrosis, Brit. Med. Jour., 1877, p. 799; Clinical Comments on Dyshydrosis and its Morbid Anatomy, Brit. Med. Jour., 1878, p. 749; Clinical Lecture on Dyshydrosis, Atlas of Skin Diseases, Plate li, p. 84, London, 1873.

2. Hutchinson: Notes on a Clinical Lecture Written Out in 1871, and Now Printed Verbatim, Lancet, London, 1876, p. 650.

3. Hutchinson: Cheiropompholyx, Letter to the Lancet, London, 1876, p. 307.

4. Robinson: Pompholyx, the Cheiropompholyx of Hutchinson and the Dyshydrosis of Tilbury Fox, Arch. Dermat., 1877, p. 289.

5. Thin: Remarks on a Skin Affection Lately Observed and Described as Dyshydrosis, Cheiropompholyx and Pompholyx, Brit. Med. Jour., 1877, p. 761.

6. Fox and Crocker Radcliffe: The Minute Anatomy of Dyshydrosis, Tr. Path. Soc., London, 1878, p. 264.

7. Crocker, Radcliffe: Diseases of the Skin, P. Blakiston's Son and Co., Phila., Ed. 3, i, 291.

papillary, and situated between the ducts. In no instance could he convince himself that the coil-gland was inflamed. The fact that, in his text-book, Crocker finally adopted the name "pompholyx" for the affection and classed the disease among the inflammations instead of with disorders of the coil-glands would indicate that he was far from positive regarding the correctness of his earlier deductions. Williams[8] and Santi[9] working in Unna's laboratory, both concluded, with Robinson, that the vesicles do not result from dilatation of the intraspinous portion of the coil-gland ducts. Williams studied 229 serial sections, from three typical lesions. He found that while many of the vesicles lay quite close to the sweat ducts, they did not communicate with the latter. Frequently the ducts were diminished in size, and pressed to one side, forming wide loops around the cavities, but not connecting with them in any way. Breda's[10] conclusions, published at about the same time, but based on independent investigation, in Italy, were very similar to those of Williams. In particular, he emphasized the perivesicular looping of the coil-gland ducts in some of the specimens (an observation of Williams' the accuracy of which appears to have been questioned by Crocker.[7]) Paul Farey[11] who next made an exhaustive study of the disease, decided that the pathologic process did not involve the sweat apparatus in any way, but probably was due to a temporary exacerbation of a chronic vasomotor disturbance, and might be regarded as a toxiconeurodermatitis.

Despite the accumulated evidence, however, many expert clinicians still hold to the sweat-duct origin of the condition. Recently, Nestarowsky[12] working in Pawlow's laboratory in St. Petersburg, has examined a large number of sections (2,840) from six cases of pompholyx. He criticizes the work of other observers, in that he believes that their conclusions have been based on insufficient data. In his opinion, the affection is a disorder of the sweat-ducts, secondary to disturbance of the vasomotor or secretory nerves. He considers that hyperhydrosis, or the condition underlying it, is a predisposing factor. The distribution of the lesions, together with the fact that the disorder occurs most frequently (but not always) in individuals who are the subjects of hyperhydrosis is very suggestive, and Schamberg[13] states that "the clinical phenomena rather support the views of Tilbury Fox and Crocker," while Pusey,[14] a dermatologist of wide experience and admirable judgment, expresses the belief that "the disease is exactly analogous to miliaria on other parts, but presenting clinical differences on the palms and soles because of the thickened epidermis under which the sweat is retained."

It may be stated, in passing, that the very extraordinary case reported by Rasoni[15] which is sometimes referred to as an instance of "generalized pompholyx," was very probably an example of the condition recently described by Ormsby[16] under the name of "syringoma."

8. Williams: Cheiropompholyx, Monatsh. f. prakt. Dermat., 1891, p. 41.
9. Santi: Zur Frage der als Dyshydrosis, Cheiropompholyx und Pompholyx beschriebenen Hauterkrankung, Monatsh. f. prakt. Dermat., 1892, p. 93.
10. Breda: Pompholyce, Robinson, Osservazioni clinico-istologische, Rlv. clin. e terap., 1891, p. 547.
11. Farey, Paul: Thèse de Paris, 1896.
12. Nestarowsky: Dyshydrosis, Dermat. Ztschr., 1906, p. 183 et seq.
13. Schamberg: Diseases of the Skin and the Eruptive Fevers, W. B. Saunders Co., Phila., 1911, p. 98.
14. Pusey: The Principles and Practice of Dermatology, Appleton & Co., New York, 1911, p. 948.
15. Rasoni: Tr. Internat. Med. Cong., London, 1881, iii, 146.
16. Ormsby: Jour. Cutan. Dis., 1910, p. 433.

During the past summer, it was my good fortune to see a large number of cases of pompholyx, a rather unusual experience in the Middle West. All were in private practice, and, although ambulatory, quite well under control. At various periods during June, July and August, nine more or less typical examples of the disease were selected for study. Of these patients, seven submitted to biopsy (two at their own suggestion, when they found that I was particularly interested in their condition. Each of these had two specimens removed). Lesions at various stages of development were selected for excision. All doubtful cases, presenting vesicles on the sides of the fingers only, were rejected

Figs. 3 and 4.—Lesions in stage of desquamation, Case 5.

SUMMARY OF CASES STUDIED

A brief summary of the case histories is of interest:

CASE 1.—L. G., man, aged 20, single, train despatcher. Referred to me by Dr. Leon Rosenwald of this city. Hands and feet affected. Fourth attack (at intervals of one year). Plantar and palmar hyperhydrosis. Two lesions excised from left palm.

CASE 2.—A. N., woman, aged 32, married, housewife. Hands and feet affected. Numerous previous attacks at brief intervals, during past five years. The vesicles develop rapidly, and an attack usually lasts only a few days. Patient extremely

nervous and excitable. Cold extremities. Plantar and palmar hyperhydrosis. One lesion excised from left palm.

CASE 3.—S. M., woman, aged 34, widow, governess. Referred to me by Dr. J. M. Frankenburger of this city. Hands affected. Second attack, the first having occurred in June, 1911. One lesion excised from left palm.

CASE 4.—F. G., man, aged 38, single, clerk. Referred to me by Dr. Joseph Nutz of this city. Hands and feet affected. Palmar and plantar hyperhydrosis. Third attack (annual).

CASE 5.—H. S., man, aged 46, married, judge. Hands and feet affected. Second attack, the first having occurred in July, 1911. Two lesions excised from palm.

CASE 6.—P. K., man, aged 41, married, bookkeeper. Referred to me by Dr. Eugene Carbaugh of this city. Hands and feet affected, former severely, latter slightly. First attack.

CASE 7.—E. M., woman, aged 24, married, housewife. Referred to me by Dr. Fred Kyger of this city. Hands and feet

Fig. 5.—Pompholyx lesion occurring in line of coil-gland duct. The canal was of normal caliber throughout its course.

Fig. 6.—Two vesicles from palmar surface in Case 7.

affected. Second attack, the first having occurred in August, 1911. Lesion excised from right palm.

CASE 8.—L. I., woman, aged 29, single, stenographer. Referred to me by Dr. N. E. Lake of this city. Hands affected. Third attack, the first having occurred in May, 1910, the second in September, 1911. Hyperhydrosis of hands and feet. One lesion excised from left palm.

CASE 9.—A. R., woman, aged 34, married, housewife. Referred to me by Dr. Eugene Carbaugh of this city. Second attack, the first having occurred in August, 1910. Hands and feet affected, latter only slightly. No hyperhydrosis. Lesion excised from thenar surface of left hand.

EXAMINATION AND TREATMENT

For anesthesia, Schleich's solution (No. 1) was employed, the preparation being injected subcutaneously, at a distance of about 1 cm. from the margin of the lesion. The bits of tissue were removed by means of a medium-sized cutaneous punch, and immediately placed in a 4 per cent. aqueous solution of formalin. One of the specimens from Case 1 was frozen, and a number of sections (eighty-four) were cut from it. The others were passed through the usual solutions, mounted in celloidin or in paraffin, and cut serially. The greater number were stained with hematoxylin-eosin, although a few Weigert and Gram-Weigert preparations were made. In all, 2,028 sections were examined. The findings corresponded in almost every respect to those of Robinson, Santi, Williams and Breda. No displaced coil-gland ducts were found, however, and no bacilli, such as have been described by Unna,[17] as occurring in Williams' sections, were to be seen. In only two specimens, one from Case 5 and one from Case 9, was there any visible connection between the vesicles and the ducts. In sections from these two lesions, the coil-glands and the epithelial lining of the lower portion of the ducts showed no inflammatory or degenerative changes, and there was every indication that the involvement of the sweat-apparatus was purely accidental (an occurrence which one could not consider as unusual in

Fig. 7.—Lesion from palm, very early stage (Spencer, 0.25 Obj., no ocular).

a region so thick in coil-gland elements as the palmar surface of the hand).

At the beginning, I must frankly acknowledge that I shared the view of Tilbury Fox and Crocker and Nestarowsky and Pusey, and, subconsciously it may be, the work was undertaken with the intention of proving the correctness of this supposition. When the first lesion was examined, however, and no evidence of a connection between the vesicles and the coil-glands or ducts was found, I was somewhat disconcerted, and determined to employ other methods of investigation in addition to the examination of serial sections. The patient (Case 1) was immediately placed on pilocarpin hydrochlorid, 0.005 gm., gradually increased to 0.02, by mouth, every four hours. At the end of forty-eight hours, the lesions showed little, if any change, although sweating had been profuse on all parts of the body during the entire time. Patients 3 and 4 received the same treatment, with similar results, or rather lack of results. Patient 2 was in

17. Unna: Histopathology of the Diseases of the Skin, Walker's Trans., Macmillan and Co., New York, 1896, p. 179.

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the middle of an attack when first seen. She was placed on atropin sulphate, 0.0003 gm., gradually increased to 0.0006, by mouth, every four hours. The condition appeared to improve rapidly, and both the patient and I were greatly pleased. Three weeks later, however, she had another attack, and the same drug, pushed to the physiologic limit, failed to have any effect whatever on the lesions. Cases 7 and 8, similarly treated, also showed no signs of improvement, consequently it is very probable that No. 2 was just on the point of getting well when treatment was instituted. Patients 3, 4, 5, 6 and 8 were given potassium iodid, 0.6 gm. in aqueous solution, by mouth, after meals and at bed hour, for periods of from two to five days. In addition, Patients 5 and 6 each received two doses of pilocarpin, hypodermically, on the third day of the iodid medication.

At various times during the period in which iodid was administered, fluid was carefully withdrawn from several of the vesicles in each case, and tested for iodin. Under the direction of Dr. Roy Cross, of the Kansas City Testing Laboratory, this was done by placing a few drops of the fluid in a small test-tube, adding some crystals of potassium permanganate, and, after placing a bit of moist starch-paper (made from quantitative filter material) at the mouth of the tube, adding a few drops of concentrated sulphuric acid. In only one instance, the lesion being on the left palm of Patient 3, was an iodin reaction obtained. Some of the vesicles were quite large, a centimeter or more in diameter, and from 3 to 12 minims of fluid were withdrawn from each. The test is an exceedingly delicate one, and it is hardly probable that if iodin had been present it would have escaped detection. Only a few cultures were made, as the problem was undertaken from a purely histopathologic point of view. Agar, glycerin-agar and blood-serum were used as mediums. The staphylococcus (albus and aureus) was the only organism found.

CONCLUSIONS

The pathologic changes in pompholyx are confined almost wholly to the prickle-cell layer, only a slight perivascular infiltration being present in the derma.

The coil-glands are not involved, and the ducts are implicated only by accident. At bottom, the condition is very probably a neurosis, the direct exciting cause being a toxin other than locally microbic in origin.

610 Commerce Building.

ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: I was particularly interested in listening to Dr. Sutton's views on the histopathology of pompholyx because the results of his work support what I have taught for many years. My associate, Dr. Simpson, will bear me out in my statement that I have always impressed on my students the neurotic character of these cases, and have held that there was no real involvement of the sweat-glands. I have always maintained that the term "dyshidrosis" was a misnomer, and I am glad that my ideas on this point have been supported. I have always held that any eruption that occurs in the form of grouped small vesicles indicates a neurotic element, and I believe that we have good reasons for looking on the pemphigus group as the result of an underlying neurosis, and the same is true of pompholyx. This eruption sometimes appears along the course of the ulnar nerve and reaches no further.

DR. ISADORE DYER, New Orleans: Perhaps no one in this audience is more interested than I in the general proposition of pompholyx, for the reason that perhaps no one sees more cases of pompholyx than we do in New Orleans, where we number our cases by the score, and where, during the warm season, from May to October, we see anywhere from one hundred to two hundred cases. It is rather unusual to see these cases during the colder weather, and if we do see them during the winter months it is because the weather is unseasonably warm. The eruption is sometimes preceded by an elevation of temperature. As to the pathology of this disease, basing my opinion on clinical observation, I have held for a number of years that pompholyx is a disorder of the sweat-glands, those associated with hyperhidrosis, and in that connection I would mention its frequent occurrence on the feet instead of the hands. While Dr. Sutton and others who have studied the histopathology of this disease may not agree with our observation, yet those of use who have lived in the atmosphere of this disease and have so frequently seen the evidence that it was associated with seasonal changes, still argue in favor of its relation to the sweat-glands, although this relationship has not been established.

My observation has been that pompholyx occurs with much greater frequency in males than in females—perhaps ten to one; that it rarely occurs excepting among excessive smokers, and that reduction in the quantity of tobacco consumed materially assists in controlling the disease. In addition to this, I usually reduce the amount of proteins in the diet and order strychnin, and occasionally give the high-frequency current or the Roentgen ray.

In view of what Dr. Sutton has told us I shall no longer teach that pompholyx is due to a disturbance of the sweat-glands. In many of the cases that I have seen the eruption never reaches the stage of vesiculation. The patient may, for a period of years, show an eruption similar to that presented in some of the photographs exhibited here to-day, and without any vesiculation. The lesions may simply consist of small scaly spots.

DR. WILLIAM A. PUSEY, Chicago: I agree with Dr. Dyer that this disease may not have its inception in the sweat-glands, but I am not convinced that it is not a sweat eruption. My idea of pompholyx is based largely on the facts of the condition as we see it. We see it in sweating feet and to a less degree in sweating hands—not necessarily in hyperhidrosis but in the ordinary sweating during hot weather. I have seen a good many cases in Chicago, especially recurrent attacks affecting the feet, in patients who have an attack summer after summer. To my mind the situation is this: There is a maceration of the epidermis by the sweat, with the formation of sweat-cavities in the epidermis which may or may not become inflammatory. These cases may become infected by the *Staphylococcus albus*, which is always there.

The fact that Dr. Sutton does not always find his vesicles in the site of the sweat-channel, does not prove that the lesions are not due to the collection of sweat in the epidermis. The sweat-channel in the epidermis is not a closed channel; the sweat percolates between the epidermal cells and, when excessive, may collect at sites of least resistance which may not be in the line of the sweat-channel—just as water in a marsh forms pools in depressions regardless of their relation to the stream which feeds the marsh. I think you can very readily conceive of the lesion of pompholyx being produced by the sweat and only in a certain proportion of the cases occurring directly in the sweat-channel. As to the neurotic theory of pompholyx, one reason, perhaps, for my aversion to it is my objection to neurotic theories in general for skin eruptions. To my mind, the neurotic involvement is secondary rather than primary, and I believe we possess a much more rational explanation for the lesions of pompholyx in a vasomotor disturbance of toxic origin or any other rather than in a purely nervous origin. The patients I see with pompholyx belong to the ordinary run of individuals whose hands and feet sweat in hot weather. Some of them smoke, perhaps to excess; others do not smoke at all. They present other lapses from the ideal standard of personal habits—just like other mortals—to which I would attach as much or as little importance.

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DR. FRANK E. SIMPSON, Chicago: I believe that there are two types of pompholyx, that we do not always see or describe the same type, and that in some of these cases there

is a distinct neurotic element. These are probably the cases of true pompholyx. In other cases, we are dealing, not with pompholyx, but with a condition allied to, or identical with, miliaria.

DR. M. L. RAVITCH, Louisville, Ky.: A discussion of this kind is good evidence of the fact that the text-books are not infallible. Every text-book on the subject tells us that children do not suffer from pompholyx, but in my section of the country they do. I believe Crocker was right when he said that the lesions were due rather to hyperhidrosis, than to dyshidrosis, and so on, and in all the cases which I have seen there was a neurotic element present. I am also inclined to believe that the use of tobacco in the shape of excessive smoking or chewing has some etiologic bearing on it.

A year ago Dr. Dyer advised the use of salicylic acid and strychnin in the treatment of pompholyx. I have tried this treatment with very good results, and I have also found that these patients often recovered with a change of climate. Some authorities, among them Unna, assert that the eruption has a bacterial origin. In some of these lesions we find the staphylococcus, but I regard that as an incidental occurrence.

DR. K. A. ZURAWSKI, Chicago: I think that the histologic features of pompholyx as described by Dr. Sutton may be considered as final, and that the various theories that have been advanced in the discussion as having an etiologic bearing on the disease are not incompatible with the histopathologic picture he has advanced. We know that in pompholyx we have an accumulation of fluid in a certain slow-forming cavity. The question arises whether or not this is due to a neurotic element. There is no reason why a local or general neurosis should not alter a secretion to such an extent that it will become less permeable and will result in the local accumulation of such a secretion. Likewise, the theories advanced by Dr. Dyer that the disease is almost invariably met in heavy smokers and is very common in warm climates are not at variance with the histopathologic picture of Dr. Sutton, which I believe is practically conclusive. It now only remains for us to investigate pompholyx from the point of view of the chemolysis of this particular secretion, through which we may reach the final solution of the etiology of pompholyx and perhaps many other of the vesicular eruptions. We may learn that it is due to some organism which produces some chemical change in the secretion, or that perhaps this alteration is the result of a nervous disturbance. This problem still remains for us to solve, but whatever its solution, I do not think that it will alter the histopathologic findings of Dr. Sutton.

DR. EVERETT S. LAIN, Oklahoma, Okla.: I wish simply to say a few words touching on the treatment of pompholyx. About three years ago a patient was referred to me who suffered from recurrent attacks of pompholyx. One day when I was out of the city my assistant, unintentionally, gave the patient a massive dose of the Roentgen ray, somewhat similar to the treatment described by Dr. MacKee. The immediate result of the treatment was rather severe, but the patient has been free from attacks of pompholyx since.

DR. JOSEPH ZEISLER, Chicago: I am afraid that not all of us who have taken part in this discussion have had the same affection in mind. Sweating feet, for example, I do not regard as pompholyx, although hyperhidrosis of the feet may be complicated by blisters. I saw many such cases during my service in the army, but I do not class those cases as pompholyx, nor do I call the formation of small vesicles occurring on the hands as the result of summer heat pompholyx. Dr. Sutton's paper referred to pompholyx proper and not to something else.

DR. RICHARD L. SUTTON, Kansas City, Mo.: I do not think that Dr. Dyer and I are so far apart clinically, after all. The fact that the majority of his cases occur in tobacco-users, the frequency of the disease in midsummer, and the line of treatment suggested by him all serve to bear out this contention. Nervous breakdowns occur oftener during the hot months than at any other time; excessive smokers of tobacco are usually neurotic individuals, and but few therapeutists have found strychnin beneficial in the treatment of the known disorders of the coil-glands. In New Orleans the majority of the women go north for the summer; hence the preponderance of male patients is readily explained.

Dr. Pusey's assertion that practically all sufferers from pompholyx are also afflicted with hyperhidrosis may hold good in his clientele; it does not in mine. Fully one-third of my pompholyx patients had never been troubled with disturbances of the sweat-glands of the hands or feet at all prior to the date of consultation. The chemical characteristics of the vesicle contents were so thoroughly investigated by Robinson (whose findings have been confirmed by the vast majority of later observers), that I considered the matter closed. In a measure, I agree with Dr. Simpson: all medical men are subject to errors of judgment when it comes to questions of diagnosis, and I have found the majority of dermatologists exceedingly human, after all. I am afraid that Dr. Ravitch misquotes the late Professor Crocker. If Dr. Ravitch will carefully read the reference cited, I am sure that all his doubts regarding the matter (in so far as Radcliffe Crocker's conclusions are concerned) will speedily vanish. Change of climate, particularly if a cooler temperature is selected, undoubtedly benefits many cases of pompholyx, just as it does other neurotic disorders, but one of the worst cases of plantar hyperhidrosis I have ever seen occurred in a professional iceman. If Dr. Zurawski's suggestion regarding the "everglade" character of the superglandular epidermis were true, the iodid solution should penetrate the "marshy" tracts as readily as does the fluid in which it is dissolved, and the contents of every vesicle should show traces of the drug. Inasmuch as only one of them did, I am forced to acknowledge that I believe that the contamination was accidental and not pathognomonic.

CONGENITAL STRICTURE OF THE PROSTATIC URETHRA

WITH BLADDER HYPERPLASIA, URETERAL DILATATION AND MULTIPLE ABSCESSES OF BOTH KIDNEYS

WILLIAM H. JORDAN, M.D.

Visiting Pediatrician to St. Joseph's Hospital; Visiting Physician to Rhode Island Hospital, Outpatient Department, Diseases of Children; Visiting Pediatrician to St. Vincent de Paul Infant Asylum

PROVIDENCE, R. I.

Congenital stricture is described as an occlusion of the urethra which may occur at three different places: first, at the meatus; second, at the outer limit of the fossa navicularis, and third, at the membranous urethra.

None of the text-books describe a stricture of the prostatic portion. Keyes[1] says that stricture in the deep urethra is exceedingly rare; one text-book[2] denies its existence below one-fourth inch from the meatus. Such strictures are caused by inaccurate apposition in the embryo of separately developed sections of the urethra. The stricture is endodermic in origin.

Guibe[1] relates an interesting fatal case in which the stricture admitted only a needle. Stricture of the meatus and fossa is quite common and is often overlooked because it gives rise to few, if any, symptoms.

The case I wish to report occurred in my practice and the patient died in the seventh week of uremic convulsions.

REPORT OF CASE

History.—R. W. S., boy, born Sept. 7, 1912, of normal parents, was the first child although the parents had been married thirteen years. Family history was negative. Father was 36 and mother 37 years of age. Mother had had no miscarriages. Child weighed at birth 5½ pounds and on examination was normal-looking except for size. He was

1. Keyes: Genito-Urinary Diseases, p. 170.
2. Lydston, G. F.: Venereal and Sexual Diseases, p. 182.

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breast-fed and seemed to do well for three weeks. During the fourth week the mother took complete care of the child and she noticed that every time she handled the baby she found the diaper moist. She watched him carefully for a week and noticed that he never urinated. The urine would drip from the meatus.

Examination.—My attention was called to this October 6 and a diagnosis of urethral stricture was made. I attempted to pass a small sound and was unable to do so. I then took a small probe from my pocket case, sterilized it and succeeded in passing it into the urethra as far as the prostatic portion and here I met with an obstruction which for several minutes interfered with further progress. I finally succeeded in passing it. As soon as I had entered the bladder a small stream, not more than a teaspoonful of urine, escaped by the side of the probe.

Treatment and Course.—I put the child on hexamethylenamin (urotropin) 1 grain three times a day and passed the probe daily for two weeks. While the probe entered more easily after the first few days, there was no improvement in

Congenital stricture of the prostatic urethra. Hyperplasia of bladder. Ureteral dilatation and multiple abscesses of both kidneys.

the condition. The child still continued to pass urine a drop at a time. Daily examination of the abdomen did not elicit any symptoms of bladder distention. About this time, sixth week, the kidneys could be palpated and were growing larger daily. October 20 the abdomen was very much distended, and the child had considerable dyspnea. His weight at this time was 5 pounds 12 ounces. October 21, dyspnea was still present. Abdomen was distended and remained so after soapsuds enema. October 22 progressively worse. October 23 he had frequent convulsions from early morning until 11:30 a. m., when he died.

Necropsy.—I obtained permission to make a partial postmortem examination. This I did five hours after death. The abdomen was greatly distended and of a bluish tint. The peritoneum and intestines were normal except for a large amount of gas. Both kidneys were much larger than normal. Both ureters were large and sacculated, especially the right. The bladder was small, hard and seemed to be a solid mass about the size of a large olive. I carefully dissected out both kidneys, ureters, bladder and penis in mass.

MEASUREMENTS AND WEIGHTS

	Length, in.	Width, in.	Depth, in.	Weight, oz.
R. Kidney	2⅝	1⅝	1¼	2
L. Kidney	2¼	1⅝	1¼	1½
R. Ureter	4	⅛	...	...
L. Ureter	4	⅛	...	...
Bladder	1½	¾	1	...

The urethra was carefully split along its dorsal surface from meatus into the bladder and a stricture at the prostatic portion was found which measured one-quarter inch in length. The bladder when opened resembled a dilated canal surrounded by dense fibrous tissue and would hold about one dram. Both kidneys were large and nodular, containing many cysts and when opened showed a chronic diffuse nephritis.

176 Academy Avenue.

USE OF PALATE MUCOUS MEMBRANE FLAPS IN ANKYLOSIS OF THE JAW DUE TO CICATRICIAL FORMATIONS IN THE CHEEK

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In two cases of ankylosis of the jaw due to cicatricial formations in the cheek following destruction of tissue I resorted to a method of flap-interposition which, so far as I know, is original. It is well known, I believe, that in all my arthroplasties I have favored the pedicled flap for interposition between the ends of the bones. Therefore, when the first of these two cases of ankylosis of the jaw came under my observation, I endeavored to secure a pedicled flap for interposition to prevent a recurrence of the ankylosis.

The flap in the first case was removed from the hard and soft palate of the patient and consisted of the mucosa and submucosa. It was a pedicled tongue-shaped flap and it was swung outward so as to cover over the denuded bony surface of the upper jaw, which had been formed when the jaws were chiseled apart. The result exceeded my expectations. The flap lived and the ankylosis did not recur. The result was so good that I was led to resort to the same procedure in a second case of ankylosis of the jaw.

REPORT OF CASES

CASE 1.—C. D., girl, aged 10, came to Mercy Hospital, December, 1912, on account of inability to open the mouth. The jaws were fixed so tightly that there was absolutely no motion.

History.—About Sept. 1, 1909, the patient contracted typhoid. During the three weeks of the disease she complained of a sore mouth. The mother, when she examined the mouth, noticed a small, reddened elevated patch about half the size of a pea on the buccal mucosa of the right cheek opposite the second or third lower molars. The patient complained of toothache in that region. She had the habit of putting her fingers in her mouth and working her teeth loose. In the course of a few days she had succeeded in pulling out the second and third inferior molars. A short time after the onset of this mouth trouble (the mother thinks it was only a few days or a week) it was noticed that the elevation on the buccal mucosa had increased to about the size of a silver dime. Its surface was raw and a yellowish fluid was discharging from it. This mass was excised. Following the excision the patient suffered from stiffness of the jaws, which increased in degree, until at the end of the third week she was unable to open her mouth. There was considerable tenderness on pressure over the right temporomandibular articulation.

The following week an attempt was made to relieve the fixation. An incision extending from the temporomandibular

articulation downward to the angle of the lower jaw exposed the ramus. It is said that the ramus was scraped and a drainage tube inserted. A yellowish fluid was discharged for about two weeks and during this time there was motion in the jaw. After the discharge ceased the jaw became fixed again and three weeks after the operation it was absolutely immobile. Three weeks later (six weeks after the operation) a red painful swelling appeared on the jaw midway between the angle and the symphysis. The swelling was incised and its contents evacuated. A yellowish fluid was discharged from it for about a week. The abscess healed, but ruptured spontaneously about nine days after the discharging sinus had closed.

Examination.—When I saw the patient she was unable to separate her jaws even a fraction of an inch (Fig. 1), but she had no pain nor was there tenderness on pressure over the temporomandibular joint or elsewhere. Several incisor teeth had been extracted to permit of feeding. An examination of the roentgenogram showed that there was not a bony ankylosis, but the type of operation which I had decided to perform remained the same, no matter whether the ankylosis was bony or fibrous.

Treatment.—Dec. 10, 1912: In order to expose the field of operation freely, an incision was made extending from a point 1 inch in front of the ear on a line with the lower border of the external auditory canal, downward to the angle of the mouth, describing a curve with its convexity downward toward the angle of the jaw. By means of retractors the jaw bones were well exposed, and my original interpretation, that this was a fibrous extra-articular fixation and not a bony ankylosis, was confirmed. The alveolar process of the inferior maxilla had been removed in large part at the previous operation. I completed the removal of the alveolar processes of both the upper and the lower jaws by means of a flat chisel, and also divided the attachment of the temporal muscle to the interior aspect of the ascending ramus of the inferior maxilla. The jaw immediately dropped.

Fig. 1. Case 1.—Fixation of the jaws before operation

A tongue-shaped pedicled flap was then dissected free from the palate. The base of the flap was toward the back of the mouth. The flap consisted of the mucosa and part of the submucosa. The inner limb of the incision being made about a quarter of an inch shorter than the outer limb, the base of the flap formed the base line of an obtuse angle, whose upright line was formed by an imaginary median line running through the center of the hard palate. Therefore, when this flap was turned outward, so as to cover the denuded area in the upper jaw where the bone had been exposed by the chiseling, there was absolutely no contraction or interference with the circulation in the flap, which might have been caused if I had not taken this precaution in forming the angle of the base properly. Even then, I feared that gangrene might occur, but it did not. This flap measured about half an inch in width and an inch and a half in length. Its sides were sutured with very fine catgut to the free margins of the gums and the tip was anchored to the cheek. A small pledget of antiseptic gauze was inserted between the jaws, to serve as a packing as well as to prevent, at least in some degree, infection of the detached flap and raw tissues. The mucous membrane of the cheek was then very carefully reunited and approximated with fine catgut and the skin incision was closed with horsehair. The wound was dusted with bismuth subiodid powder and a plain sterile dressing applied.

The patient recovered promptly from the operation, suffered very little pain and was able to take liquid diet without any very great effort. A pledget of gauze folded on itself a number of times was placed between the jaws to act as a wedge. About a week after the operation, a wedge-shaped piece of wood was substituted for the gauze pad and the patient was encouraged to spread the jaws as much as possible during the day.

Result.—When the patient left the hospital, about four weeks after the operation, she was able, without assistance, to open her jaws freely for a distance of about an inch (Fig. 2). The wound in the cheek had healed by primary union. The horsehair stitches were removed from the skin on the tenth day. The disfigurement was not great. March 10, 1913, the patient wrote that she could open her mouth about an inch and a half.

CASE 2.—J. W., man, aged 28, entered Mercy Hospital, Feb. 27, 1913, on account of inability to open his mouth.

History.—In July, 1909, he had an abscessed molar tooth in the right upper jaw which was quite painful and swollen. He did nothing for three weeks; then his physician opened the abscess from within the mouth and cauterized it. A week later the whole right side of his face was swollen. An external incision was then made through the cheek to reach the abscess but little pus was evacuated. Four days after this operation he noticed that there seemed to be some obstruction, other than that which caused the pain, which prevented him from keeping his jaws separated. This condition became steadily worse. In December, 1912, he was scarcely able to open his mouth at all. He said that something seemed to be holding his jaws together, but that the mandibular articulations were never sore or swollen. He had no distinct chill at any time. About one year after the onset of the trouble (August, 1910) he had an operation performed within his mouth to relieve the ankylosis, but it proved a failure.

Fig. 2. Case 1.—Degree of voluntary separation of the jaws about four weeks after the operation.

Examination.—The patient had a complete fixation of the jaw. He was unable to open his mouth and on attempting to pry it open, I found that the jaw was thoroughly ankylosed. There was absolutely no motion. The ankylosis was of the extreme exarticular fibrous type. Cicatricial tissue held his jaw fixed. The cicatrix extended clear back to the ramus of the jaw.

Treatment.—Feb. 28, 1912: This cicatricial tissue was carefully divided with scissors and scalpel. In order to prevent the recurrence of the ankylosis by the reformation of the fibrous tissue, I interposed two tongue-shaped flaps, one from the floor of the mouth and the other from the hard palate. By drawing the tongue over to the opposite side these areas were exposed freely. Both flaps were tongue-shaped, about 2½ inches in length and ½ to 1 inch in width, respectively. The base of the flap was directed toward the alveolar process in the case of the upper flap and toward the root of the tongue in the case of the lower one. Both of these flaps were first swung outward to cover over the raw surface where the adhesions were separated. The tips of the flaps were sutured to the inner margin of the cheek. The denuded areas left after

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the removal of the flaps were left to heal over. All the suturing was done with fine catgut.

Result.—The result in this case was entirely satisfactory. The patient left the hospital five weeks after the operation. He was able to open his mouth unassisted about an inch. Unfortunately no photograph was secured.

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CREEPING ERUPTION

TWO CASES WITH RECOVERY OF THE LARVAE

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Creeping eruption is apparently a very rare disease, and the recovery of the larva producing this curious lesion is rarer; only two report having recovered it. The

Fig. 1.—Case of creeping eruption. Two larvae started at point marked X, one going down over eyelid and crossing from upper to lower lid during the night. The upper part of each line was intensified slightly with pencil when photograph was taken.

following two cases, therefore, are recorded, particularly because in one of them, in which there were two of the lesions, both larvae were recovered.

CASE 1.—A farmer, aged 45, came to me in the summer of 1911 with an eruption on his left arm running in a tortuous line from his shoulder downward. There was no history of its beginning as he knew only that he had noticed a peculiar itching for some time, probably a week before he discovered the eruption. He waited for about a week before he came to me and by this time the line was about 12 or 13 inches long, the lower end being much inflamed while the upper end gradually faded out into a scaly trace.

I diagnosed it as creeping eruption and made an attempt at recovering the larva. I made a very small incision just ahead of the advancing line, but got a small hemorrhage and failed to find anything. I rubbed the wound and the surrounding surface with a 10 per cent. chrysarobin ointment and when I saw the patient a week later, all traces of the eruption had disappeared.

CASE 2.—A farmer boy, aged 13, came to me Aug. 2, 1912. He had an eruption on his face, extending from his forehead downward in two serpiginous lines. He told me that four days before this he felt, as he woke up in the morning, a burning or itching sensation above his left eyebrow.

From this inflamed spot the eruption spread in two directions, one line making a slight curve on his forehead and then extending down over the face; the other line going down through the eyebrow and over the eyelid. During the second night, while the patient was sleeping, the larva had crossed from the upper to the lower lid, whence it proceeded down over the face. On the fourth day the patient came to me and I applied tincture of iodin, trying to eradicate the parasite. Patient called again next day and each line had advanced about an inch and a half in twenty-four hours.

Pressing with a convex lens over the end of the eruption, I could see a small, dark spot; this was possibly 2 mm. from the inflamed end of the line. Using a small cataract knife, I made a small flap-like incision in the cuticle directly in front of the dark spot, the cut not being deep enough to strike any blood-vessels; and as I lifted the flap the larva emerged from its burrow so that I could pick it up with the end of the knife. This was done under a fairly strong magnifying lens, and I exercised the utmost care not to injure the larva.

Fig. 2.—Larva from case of creeping eruption (from microphotograph × 40).

Placing the little parasite under the microscope I could study its movements, which were limited to a maggot-like wriggling. The short bristle-like appendages near the head were in a constant, slow motion, while those that surround the body in rings did not show any motility.

Fig. 3.—Larva of creeping eruption × 40. (Sokolow's drawing from Pusey's "Dermatology.")

I mounted the larva in glycerin and this seemed unfortunately to shrink the outer covering and to some extent destroy the smoothness that so beautifully outlined the larva. The general outline and main characteristics, however, are well preserved.

I proceeded with the second line of the eruption in a similar way and recovered the second larva in the same way. The two were of practically the same size and shape.

Cervical Ribs.—The rib series, which is complete in limbless animals, tends to become incomplete with the development of limbs. From the point of view of comparative anatomy the ribless neck and loins are the outcomes of the functional perfection of the pectoral and pelvic limbs, or, in other words, the ribs were stripped from the vertebral column opposite those segments from which the limbs arose. The relation between plexus formation and rib development is an interesting one, for it has been shown that these two processes are anatomically antagonistic. Clinically speaking, it is not easy to diagnose between symptoms related to the presence of a cervical rib or to pressure effects on the brachial plexus from a first thoracic rib, but radiography will easily settle the question. The aid of the surgeon is seldom called for, except in those cases in which pain is a marked feature or in which paralysis and atrophy of muscle are obvious. Actual removal of the rib is not always necessary, division of the continuing band being sufficient in many cases.—*Med. Press and Circular.*

ETIOLOGY AND SIGNIFICANCE OF PERICOLIC MEMBRANES *

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The cecum and its near relatives and coadjutors, the ascending and transverse colons, have recently received a generous share of attention from surgeons, internists and roentgenologists, displacing in this respect the appendix, whose lesions, symptoms and treatment have by common consent been received into the accepted dogma of the profession. Among the interesting questions before us is that concerning the etiology and significance of certain membranous structures which are frequently found enveloping these organs in whole, or in part, and are designated by such terms as pericolic membranes, membranous pericolitis, parietocolic membranes and Jackson's membrane.

Whatever degree of importance may be assigned to these structures in the future by our riper judgment, it must always be a source of pride that the American profession has contributed so largely to their elucidation. Many times must they have been observed in the post-mortem and dissecting-room before Virchow in 1853 described them and speculated on their significance. Lane in his earlier papers subsequent to 1903 speaks of them in general terms, undoubtedly confusing types of varying cause and importance, and they have been mentioned specifically in a number of anatomic studies; but it remained for Jackson in 1909 to formulate them as a definite clinical entity, with a definite symptom-complex and plan of treatment.

Jackson's paper with its contained account of the pathology by Hall, deservedly ranks as a classic for students of these conditions. In Germany, Hofmeister, Wilms, Fischler, Klose, Stierlin; in America, Binnie, Martin, Mayo, Crossen, Gerster, Connell, Pilcher, Frazier and Flint; and in England, Gray and Anderson have contributed important papers. Within two months, long after the preparation of the present paper was begun, articles by Eastman and Connell have appeared, which largely anticipate the conclusions presented herein. Nevertheless, so much confusion of terms and difference of opinion still exist, that it seems still justifiable to bring forward further evidence.

No one can review the literature on this subject without feeling certain that much of the confusion is due to the fact that conditions of widely different origins are erroneously supposed to be identical. In my opinion these membranes may be divided etiologically into two groups: (1) congenital, and (2) those due to peritoneal irritation. Under the second heading may be included, unless indeed they deserve to constitute a class by themselves, the omental pseudomembranes due to the adhesion of the border of the omentum to the parietes, most often on the right, and thus covering the ascending colon and cecum. This adhesion is doubtless due to the same irritation responsible for the other cases included under Class 2. No one, I presume, doubts the passage through the intestinal wall of irrifating substances, whether bacteria or their products or more purely chemical irritants, without gross perforation. The region of the appendix is of course the most common example, but more striking instances of the response of the peritoneum to this type of irritation is seen in the extensive membranes covering the site of certain non-perforating gastric and duodenal ulcers and spreading far over adjoining viscera, or those associated with a malignant adenoma of the colon or with diverticula of the sigmoid. The process is apparently partly a proliferation and partly a floating up of delicate layers of the peritoneum with the formation of large lymph-spaces and new blood-vessels. I confess to some skepticism as to the passage of irritating bodies through the intestinal wall in the absence of ulceration, or of some other condition more evidently harmful than stagnation. The weight of experimental evidence seems to be in favor of it, yet it is well to remember that the alimentary tube is designed to contain, to retain for a considerable time, and to excrete substances undergoing chemical or bacterial decomposition, without permitting their passage through its wall. If fecal stagnation and transudation of irritants cause these membranes, why do we not see them on the descending colon and sigmoid; or, if it be asserted that they exist in these situations, why do we not find them on the under surface of the transverse colon? A third hypothesis as to etiology is the mechanical theory, chiefly championed by Lane and Fagge, which as I understand it imputes to these membranes a teleologic significance, regarding them as developed to fix viscera which are insufficiently supported. Here again, it is probable that different structures are under consideration. Probably all will admit that normal peritoneal fixations and these membranes also, if present, will become thickened and fibrous in response to the abnormal drag of a dilated, atonic and prolapsed cecum.

To return to the first group—the membranes of congenital origin—this is composed, according to my belief, of membranes of the type so ably described by Jackson and Hall. The evidence of their congenital origin is almost indisputable. The thin, diaphanous veil, springing from the posterolateral abdominal wall, on the right, overlying in varying degrees the ascending colon, but so loosely attached to it that it may be divided and lifted up with scarcely any bleeding, leaving an apparently normal colonic peritoneal surface, and the absence of any thickening or hyperplasia or change in consistency of the colonic wall, constitute a picture quite different from our conception of an inflammatory process. Moreover, this type of membrane seems to occur solely in this region. Gerster, Lane, Anderson and Gray speak in rather general terms of membranes involving the cecum, ascending colon, hepatic and splenic flexures, descending colon and sigmoid, but the reader is left in some doubt as to what type of membrane is meant. The great majority of writers, notably Jackson, Connell, Frazier, Flint, Pilcher and Eastman, state or imply that the type of membrane under consideration is confined to the right colon. This is highly suggestive of a developmental origin, for however perverted a function we ascribe to the cecum and right colon, as a cause of pericolitis, it is hardly conceivable that in all cases the rest of the colon may not share in the condition and form similar membranes.

The apparently overwhelming proof of the developmental origin is, however, to be found in the study of the fetus and new-born infant. Jackson, in a recent paper, says that he knows of no observations of pericolic membranes in infancy or childhood; meaning, probably, in the living subject. My own experience has given me a contrary impression; I have seen a well-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space this article is abbreviated in THE JOURNAL by omission of the bibliography. The complete article appears in the Transactions of the Section and in the author's reprints.

marked pericolic veil in a child aged 12, and examination of new-born infants has duplicated the experience of Flint, Connell and Eastman, expressed in their recent convincing papers. Flint found in two out of three embryos the undescended cecum attached by veil-like membranes, and well says that unless we accept the unproved theory of fetal peritonitis, these membranes must be considered but variations of the normal. He might well have added "unless we are willing to believe in cecal and colonic stasis in the fetus as the cause of peritoneal irritation, these membranes must be regarded as developmental." Eastman establishes the apparent

Fig. 1.—Abdomen of a new-born infant showing a Jackson's membrane covering the ascending colon. The rudimentary omentum may be seen at the free border of the transverse colon, unrelated to the membrane.

identity of the "parietocolic fold" of Jonnesco and Juvara, and the "bloodless fold" of Treves with Jackson's membrane, and states that among twenty-eight fetuses of over 6 months, these membranes were found in five and nine cases, respectively.

In an examination of thirty still-born infants, ranging from approximately 6 months to full term, in the anatomic laboratory of the Harvard Medical School, we found in four instances characteristic veil-like membranes extending from the parietes over the hepatic flexure and ascending colon (and in one instance over the cecum) and fusing with the peritoneum of the colon near its mesenteric border (see Figs. 1 and 2). In three of these instances there were other developmental aberrations present, such as lack of normal fixation of the cecum, a continuance of the gastrohepatic omentum to the right between the duodenum and gall-bladder, a Meckel's diverticulum and an undescended testicle. This coexistence of other variations may be considered significant in the etiology of the veils. Dissection of seventeen younger embryos proved inconclusive, because, having been preserved in alcohol or formaldehyd solution, the peritoneal reflections were so friable and altered in appearance as to cast doubt on the accuracy of the observations; but at least a well-founded suspicion was entertained that three of these presented pericolic membranes. It will be noted that these percentages correspond roughly with those of Flint and Eastman.

Granted that membranes of the type under discussion are confined to the cecum and proximal colon, and are developmental, it would seem that the exact method of origin must be involved in the rotation and descent of the cecum from its first point of fixation beneath the liver. This process has been reviewed so often of late that it is well understood. The suggestion of Mayo that the cecum insinuates itself beneath a fold of parietal peritoneum and pushes it downward before it, while plausible enough on account of the laxity of the latter, is yet rendered improbable, as Jackson says, by the fact that the cecum itself is frequently not covered. The adhesion of the omental edge to the parietes over the cecum, before its descent, might closely simulate this condition. On the whole, the most satisfactory hypothesis attributes the process to the twisting of the

Fig. 2.—The same subject with the cecum of fetal type and appendix raised to show a genitomesenteric fold connecting the mesentery of the termi. l ileum with an undescended testicle. The small intestine has been . oved except the terminal ileum, whence may be seen springing a Meckel's diverticulum. *A*, undescended testicle; *B*, Meckel's diverticulum; *C*, cecum.

cecum and proximal colon on its long axis after primary fixation and during descent. When the cecum, by the rotation of the colon on the root of the mesentery as a fixed point, passes to the right beneath the liver, the ileum enters it from the right, and the twisting which brings it ultimately to enter from the left probably occurs normally in the most natural way, so as to draw

the recently attached parietal peritoneum behind the ascending colon, which process would obviously be obscured by further adhesion. It is reasonable to suppose that under certain conditions the twist may occur in the opposite direction, which would have the effect of drawing the attached peritoneum over the colon in such a way as strongly to suggest a Jackson's membrane. It is not strange that proof of this is hard to obtain, as was the case in Connell's investigations. In one instance I found the ileum entering from the front in such a way that a twisting outward, backward and inward to its adult position would be very improbable, while the more probable twisting inward and backward would have drawn the parietal peritoneum over the ascending colon like a Jackson's membrane.

The importance of the exact etiology of these structures is chiefly to aid us in estimating their clinical significance. It may be agreed at once that any membrane, whatever its origin, which operates to fix or confine the appendix in such a way as to interfere with the proper drainage of its lumen into the cecum is a menace to the life of the individual. Similarly, membranes which confine the colon, and thus impair its peristalsis, must be assumed to be noxious. But do these slender, tenuous veils of congenital origin suggest such confinement? It may be doubted whether such slight fixation is often of much importance. Although the analogy is not complete, the condition may be compared with that of the duodenum, which, broadly and firmly fixed behind, overlapped by the border of the pancreas, crossed at its second portion by the transverse mesocolon and at its third portion by the root of the mesentery, yet discharges its function without embarrassment save in rare instances. The cecum has acquired a bad name—it is variously termed a sink, a sewer, or a cesspool. Perhaps it is possible to be carried too far in our conception of the proximal colon as a pool harboring dangerous toxins and a bacterial flora which, at the slightest retardation of its flow, will be absorbed into the circulation or pass through the bowel-walls and cause a local inflammation. It may be profitable to return to the teachings of physiology and recall that the cecum and proximal colon are homologous with a portion of the alimentary tract in the herbivora in which stasis is essential to proper digestion; that in man, who is in part herbivorous, the intestinal contents, after a rapid passage through the jejuno-ileum, are poured into the cecum still containing half of the fluids and a material portion of the absorbable solids which have been ingested, and that Nature, through anatomic arrangement and antiperistalsis, seems to emphasize the desirability of a retarded flow through this portion of the bowel.

The diversity of therapeutic measures proposed is striking; thus Wilms corrects a mobile cecum by placing it in an extraperitoneal pocket, while Fagge denies the value of this procedure. Hofmeister and many others mobilize the ascending colon (and presumably the cecum) by dividing parietocolic adhesions, while Klose fears the mobile colon and sutures it to the wall. It is noteworthy that among the many reported cases of plastic operations on pericolic membranes the great majority were subjected also to a removal of a suspected appendix or to operations on the pelvic organs, or to various other procedures, so that it is difficult to estimate the effect of freeing the membranes alone. Moreover, few of these cases have been reported in detail as to results. There remain, however, a number of cases presented by such careful observers as Jackson, Pilcher, Flint and others in which the familiar symptom-complex of pain, distention, tenderness, constipation, mucous discharges and later sequelae were relieved by simple division of pericolic veils.

On the clinical side my own experience is as yet inconclusive. It consists of seventeen cases of right-sided pericolic membranes observed since attention was directed especially to these conditions. Of these, six were associated with and presumably were caused by a recurrent subacute appendicitis, and presented no distinct clinical picture of their own; two were similarly associated with duodenal ulcers, and one with an inflamed Meckel's diverticulum. The remaining eleven were of the type of Jackson's membrane previously described; in none of these were any lesions of the viscera noted, except the unrelated ones for which the operation was undertaken, nor were there swollen glands or other evidences of inflammation as described by Hofmeister. In eight of these eleven cases there were no symptoms attributable to the membranes, which were discovered merely in the course of a routine exploration; in the remaining three cases there was right-sided discomfort, indigestion, flatulence and moderate constipation. In one of these, a woman, the abdomen was closed without disturbing the membrane, and general measures, as urged by Martin and Coffey and others, were instituted with marked improvement. In the second case in the same sex, the membranes were divided with relief, up to the present, of all symptoms except the constipation, and in the third case, a man of neurasthenic habit, the operation gave no relief.

The evidence from the laboratory and the operating-room here presented, and a study of the work of others, has given me the very strong impression that the veil-like pericolic membranes of the type described by Jackson are congenital variations, occurring in at least 10 per cent. of individuals and causing in the majority of instances no symptoms whatever. In the infrequent cases in which there is satisfactory evidence that they constrict and obstruct the function of the colon, they should be divided, preferably with the cautery protected by a spatula introduced beneath the membrane, as advised by Hofmeister. Jackson's recent reported experience in two cases gives us ground to expect that after division they may not form again. The other type of membrane, whose cause is either inflammation spreading from some visceral lesion, or, as I think less likely, peritoneal irritation from intestinal stasis, are more likely to cause symptoms and require operative relief. Further progress in these problems will follow the careful analysis of the symptoms and living pathology of many cases by many observers, and above all the conscientious interpretation of after-results.

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ABSTRACT OF DISCUSSION

DR. JABEZ N. JACKSON, Kansas City, Mo.: The origin of the pericolic membrane is of as much mystery to me now as it was when I first saw it. The view is generally held, however, that this vascular membrane is found frequently about the right side of the colon, and that it is associated with a definite symptomatology. I am satisfied that there are a great many persons who have a membrane caused by the vascularity common to this condition, and who do not manifest any symptoms. The membrane in itself is not productive of symptoms at all until something takes place in that membrane. It is a sort of mechanical obstruction either to the appendix, or to the bowel itself, anchoring it in the lumbar fossa. I am also inclined to say, that the congenital theory as to the origin of the membrane will generally explain the

conditions present, although I have seen one or two instances in which I was perfectly satisfied that the case was of inflammatory origin. In the majority of instances this condition is characteristic in the fact that the cecum is rarely involved. The membrane begins just above the cecum and extends upward to the hepatic flexure, to about the beginning of the attachment of the omentum. Keiler first told me that this membrane was pulling down a layer of descending colon, so that I am inclined to believe that it is a congenital membrane, although Eastman's theory, that the condition is inflammatory, is also tenable. I do not believe that it is inflammatory in the sense that it comes from a peritonitis. I should say that this membrane formed as the result of an irritation caused by the obstruction of the toxins in the ascending colon. In inspecting the abdomen after death from poisoning by bichlorid of mercury, no change is found in the stomach or small intestines, but in the ascending colon up to the hepatic flexure the tissues are perfectly blue, showing that that particular part of the intestine has a tendency to absorb at least one toxic substance, namely, mercury. This part of the intestine may be the one that absorbs the toxins of low-grade bacteria, and that might account for the toxic origin of the pericolic membrane. I feel sure that there are cases in which the membrane develops sufficiently and assumes a characteristic clinical course, so as to set up a definite train of symptoms. When we operate in these cases we always find the membrane about the colon.

DR. F. GREGORY CONNELL, Oshkosh, Wis.: I am glad to see that the question of the etiology of this condition is being brought forward and emphasized, because the more important aspect of this condition is its cause. If this membrane formation is secondary to an inflammation, either in the appendix or in the mucosa of the colon, then an operation outside of the bowel which does not remove the primary cause in the lumen of the bowel surely would not lead one to expect an entirely satisfactory result. I want to agree emphatically with Dr. Cheever in his conclusions regarding the congenital development as a cause of this condition. The fact seems to be not strongly emphasized; the fact is lost sight of that there may be coincident inflammation and defective development which would account for this condition in a typical case in which Jackson has so beautifully described the pericolic membrane. He says that the cecum is not ordinarily involved, but that when it is there may be a secondary or resulting inflammation, and that this inflammation secondary to defective development would account for a large number of these cases. There is no doubt that these kinks and membranes are present and cause symptoms. Some four years ago I removed gall-stones from the gall-bladder, and also removed an acute appendix. There was a typical pericolic membrane, as described by Jackson. It was entirely pericolic; that is, it did not involve the cecum or appendix. This was some years ago, when we did not know as much about this membrane as we do now, and, on account of draining the gall-bladder, I was afraid of a retroperitoneal infection, and therefore did not touch the membrane. The patient, however, did not improve after the operation. Some six months later I operated again, and found that this pericolic membrane had become more firm and leathery. The blood-vessels in it had entirely disappeared, and there were streaks of connective tissue. There were no postoperative adhesions from the removal of the appendix. There was a marked dilatation of the cecum below this constricting band. The pericolic membrane was divided, the cecum was fixed to the posterior parietal wall, and there had been a marked improvement in the case. Another case was rather unusual in that a volvulus or torsion of the cecum secondary to a pericolic membrane was present.

DR. MARTIN B. TINKER, Ithaca, N. Y.: It seems to me that the point brought out by Dr. Cheever near the close of his paper, that these membranes rather rarely cause serious trouble, deserves emphasis. I have an impression that these membranes clash with simple ovarian cysts, which in times past have received so much attention and rarely caused any trouble. In clinics in which much abdominal surgery is done we rarely see interference with these bands. I have seen a great deal of surgery in the Mayo clinic. I have seen Dr. Ochsner and Dr. Crile, and others all over the country, operate, and I do not recollect having seen any of these men ever interfere with one of these bands. It seems to me that while there may occasionally be cases in which the bands might give rise to trouble, they really in the majority of instances offer no excuse for needless surgery, and in the hands of some men more is done with these bands than circumstances require.

DR. J. W. DRAPER, New York City: I was struck by what Dr. Jackson said in regard to the localized condition of the inflammation in the colon in cases of poisoning by mercury, because we have observed practically the same thing, namely, the localization of the toxemia of intestinal obstruction in dogs. Dr. Wallace has shown exactly the same thing in toxemia following large injections in animals of diphtheria toxins. It is quite easily conceivable that this may have a very important bearing on the subject.

DR. G. M. GRAY, Kansas City, Kan.: I merely wish to make a suggestion in connection with these bands which we meet so often. In every case in which there is a marked ptosis of the cecum and ascending colon these bands are present, and, to my mind, and as suggested by Dr. Coffey, they are really Nature's effort to protect a falling bowel. The fact of their always being met on the right side of the abdomen would also indicate that they are due to irritation of the falling cecum. So long as the colon remains on the normal shelf in the abdomen, we do not meet with pericolic membrane. When it leaves that shelf and ascends into the pelvis, this membrane is always present. I have seen many cases of ptosis of the cecum and ascending colon, and I do not recollect a single case in which these bands were not present. I attribute to the descent of the colon the irritation from the stasis that is produced in the bowel by this ptosis and the production of these bands, at least, in a large number of cases. They have no particular significance except that they are often protective and the individual might suffer more if they were severed.

THE PART PLAYED BY FUNCTIONAL DISORDERS IN THE PATHOLOGY OF THE STOMACH *

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Views regarding the pathology of the stomach are much unsettled at present. A pronounced conflict is particularly evident in the widely differing valuation of disorders of the gastric function. This proves all the more confusing because for the last forty years functional disturbances have held the central position in the discussion of gastric diseases. An entire gastric pathology was built on the knowledge of these functional disturbances, after its foundation-stone was laid by Kussmaul when he introduced the stomach-tube. Up to that time, in accordance with the prevalent tendency of the period, the pathology of the stomach had been exclusively pathology of structure. It was confined to the study of anatomic changes, of such lesions as ulcer, cancer, syphilis, tuberculosis, malformations, the different forms of gastritis, etc. The descriptive anatomy of these findings does not yield any information as to the functional activity of the viscus. It was the use of the stomach-tube which, for the first time, furnished a reliable method of studying gastric function and its disturbances. The new method was eagerly employed by numerous investigators, and

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during the period of renaissance which followed Kussmaul's communication there were recorded findings which gave the first reliable information regarding the secretory and motor activities of the stomach and their derangements. The findings of gastric analysis became well-established facts and provided a firm basis for a new pathology, a pathology of function. We became acquainted with the increase, the decrease, and the lack of gastric secretion with its different constituents, hydrochloric acid, ferments and mucus; with motor insufficiency, hypermotility and spasm; with gastric atony and paralysis. The knowledge of these and other functional disorders represents a decided and permanent progress in the pathology of the stomach. It is one thing to report findings, however, and another to interpret them. It was in the interpretation of the newly established disorders of function that grave errors were and are still committed.

Pronounced disorders of secretion were first encountered in connection with organic diseases: Lack of secretion in gastric cancer, discovered by Kussmaul's assistant, von den Velden, and increase of secretion in gastric ulcer, found and thoroughly studied by Riegel. Further investigations demonstrated the occurrence of the same functional disorders without the presence of cancer or ulcer. Here is the point at which the development of functional pathology took a turn in the wrong direction. It is undoubtedly true that functional disorders may occur without anatomic lesions of the stomach or of other organs. Unfortunately, the establishment of this fact led to a very pernicious generalization. With gastric analysis as an easily accessible method, functional disorders were studied for themselves, detached from a possible anatomic basis and without taking into account their relationship to other organs and their disturbances. Through this one-sided consideration the importance of the functional disorder was greatly overestimated and the grave mistake was made of designating each derangement of function as an independent disorder—as a disease *per se*. To make the error still more palpable all these individual functional disorders were described as so many different types of gastric neuroses. The undue emphasis thus given to the disorders of function proved very confusing and misleading and sometimes caused the overshadowing of the anatomic lesions by the functional disturbances with which they were associated. Of this no more convincing illustration can be given than the failure to recognize the presence of ulcer in cases of hypersecretion, when this disorder was stubbornly described by some authors as a pure form of secretory neurosis.

It required a great deal of work to correct such faulty conceptions. Yet it is gratifying to state that this is thoroughly accomplished, and while it is still justly claimed that functional disorders may be of independent character, it is now generally understood that as a rule they are symptoms of disease and that they are associated with pathologic conditions either of the stomach proper or of some other organ, or that they are manifestations of systemic derangements. Although errors in interpretation of the functional disturbances have been well recognized by clinical observers, they have been forcibly demonstrated by abdominal operations. I mentioned before the finding of peptic ulcer in cases of hypersecretion. The operative era of our days has further brought to light the fact that inflammatory processes in the appendix, the gall-bladder, the pancreas and other abdominal organs are often present in cases in which functional disorders of the stomach dominate the clinical picture. As a result of these observations there was a complete change in the valuation of functional disturbances. Here was something tangible, an anatomic lesion which could be demonstrated.

What could be more natural, more convincing than to take the anatomic lesion as the essential part, as the cause of the disease, to which the functional disorder of the stomach played only an inferior, a secondary rôle? As is usually the case when a reaction sets in, the pendulum swung much too far in the other direction and thus we see at present a pronounced tendency to underrate the importance of the functional disorder or to discredit it altogether. In fact, some writers go so far as to claim that the effort to construct a functional pathology has proved a total failure and they propose to eliminate entirely from medical nomenclature all terms pointing to derangements of gastric function. This annihilating attitude is directed particularly toward disorders of function so far as they are disclosed by analysis of gastric contents, while the findings at x-ray examinations are looked on with a more friendly eye. We should, however, remember that x-ray has its principal value in the demonstration of the motor activity of the stomach, regarding which function it gives us better information than does the examination of the gastric contents. Such erroneous ideas on functional disorders are presented so frequently in current literature that it becomes necessary to repudiate them. There is no cause and no justification whatsoever for throwing overboard any of our knowledge of disturbance of function, no matter whether it be acquired by gastric analysis, x-ray or any other method of examination. On the contrary, the finding of organic changes can serve only to enhance the value of the functional disorder, both as a means of diagnosis and as a causative factor in the development of disease, provided we learn to analyze the relation between anatomic lesion and functional disorder. Indeed, the main issue in gastric, as in every other branch of pathology, is to correlate properly derangements of function and of structure. In other words, we must consider pathologic physiology as much as pathologic anatomy when we try to unravel the pathogenesis of gastric diseases. It will not help to solve the intricate problems of pathogenesis if the same mistakes are made now in the interpretation of the anatomic lesions that were formerly made in the reading of the disordered function. Yet that is exactly what confronts us.

In current literature the significance of the anatomic lesion is so strongly emphasized that it completely overshadows the importance of the functional disturbance. Nor is there any lack of undue generalization. For example, it is true that hyperchlorhydria is often associated with duodenal ulcer; on the other hand the much-quoted, sweeping statement coined by Moynihan, that "in *every* case chronic hyperchlorhydria means duodenal ulcer," is just as unwarranted and just as misleading as was the former conception of hypersecretion as a pure secretory neurosis. I know of cases diagnosed as duodenal ulcer, on the basis of Moynihan's statement, in which no ulcer could be found at operation, and I have no doubt that all of you have had such experiences. Chronic hyperchlorhydria is a very common disorder and is met with in very different conditions. I need only remind you of its occurrence in incipient tuberculosis, in gout, in alco-

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holic gastritis, in chronic tobacco poisoning, in diseases of the nervous system, the heart, the kidneys, etc., to show that the diagnosis of duodenal ulcer can no more safely be based on the presence of only one symptom than can that of any other disease. As a result of undue generalization we find the frequency of certain abdominal anatomic lesions, for instance, appendicitis, greatly overrated as etiologic factors, at the cost of others which are well known as the causes of gastric disorders. There is no organ in the system the functional or organic disease of which will not eventually affect the stomach, a fact which calls for a more complete examination than is usually indulged in by those who take it for granted that "chronic dyspepsia" is almost invariably a manifestation of some anatomic alteration in the abdomen. The most remarkable effect of this faulty conception is the present tendency to disregard entirely primary pathologic changes of the stomach proper as possible causes for the disorders of its function. It is maintained that the stomach is usually unjustly accused, that it is very rarely the primary seat of disease—a rather singular view when we consider that the stomach more than any other organ is constantly subjected to insults which tend to disease by direct action on the viscus. No one doubts the harmful influence of alcohol on the gastric mucous membrane, and I hold that faulty habits in eating likewise frequently cause the various forms of gastritis and with them the corresponding disturbances of the gastric functions.

It is not alone the diagnostic value of the functional disorder, however, to which I wish to call attention, but also the more important question as to how far the functional disorder acts as a causative factor. At present there is very little inclination to accept disorders of gastric function in any way as causative factors. They are usually considered as mere symptoms of diseases. Yet a critical observer, who is not swayed by the fashionable trend of the day, cannot fail to recognize that functional disturbances may play a very decided rôle as causative factors. As an illustration, let us briefly consider the conditions which we find associated with gastric ulcer.

In discussing the pathogenesis of gastric ulcer a distinction is usually made between two problems; first, the origin and the nature of the primary lesion, and, secondly, the factors which make for its further development into an ulcer and which are responsible for its chronicity.

As primary lesions we find described miliary ecchymoses of the gastric mucosa, Beneke's[1] so-called stigmata ventriculi. I shall refrain from quoting the various theories which deal with the formation of these stigmata. On the other hand, I wish to point out as a significant fact that attempts to explain the further development of the primary lesions are based almost invariably on the effect of the two functional disorders, hyperacidity and muscular spasm, which are usually associated with gastric ulcer.

This is well illustrated by a very suggestive article in which Rössle[2] tries to show that gastric ulcer is a secondary disease; in other words, that gastric ulcer is always preceded by some derangement somewhere in the system which through nervous reflex action provokes the primary gastric lesion as well as causes its further development into an ulcer. Rössle quotes experimental evidence (Lichtenbelt,[3] von Yzeren[4]) to prove that irritation of the vagus nerve is here the principal element. It produces the primary lesion by causing spasm of the muscularis mucosa and by thus constricting the small end-arteries leads to ischemia of those parts of the mucous membrane which these arteries supply. The anemic parts may become the seat of miliary hemorrhages, forming ecchymoses. While unprotected by the flow of blood the anemic part or the ecchymosis is digested by an active secretion and an erosion is formed. This is the first stage in the development of the ulcer.

Looking for factors which might be responsible for the occurrence of ecchymoses, Rössle made a thorough investigation of the material at the pathologic institute of Munich and Jena and found ecchymoses associated with a great many different conditions. They were found with inflammatory processes of all the different intra-abdominal organs, including those of the pelvis; surprisingly often with inflammatory processes of the valvular apparatus of the heart and with diseases of the nervous system. They were further regularly noted after all the more serious operations not only on the abdomen, but also especially after operations undertaken on the ear, nose, throat or head.

While ecchymoses were observed in nearly all cases presenting any one of the conditions mentioned above, the development of the ecchymosis into an erosion occurred only in a small number of cases, and still smaller was the percentage of cases which showed the further development of the erosion into an ulcer. According to Rössle the development of the erosion and its further growth are possible only if there is more than the ordinary irritation of the vagus nerve. It requires a distinct disposition which manifests itself by an increased irritability of the vagus nerve and which evokes prolonged hypersecretion and spasm not only of the muscularis mucosa but also of the larger muscular coat and eventually of the pyloric sphincter. The latter causes stagnation of the acid secretion and thereby steadily increases its digestive action on the growing lesion. The irritability of the vagus nerve may be only temporarily increased, for example, by the effect of drugs used for narcosis; this accounts for the frequency of acute ulcers after operations. It is worthy of note that Rössle while examining postoperative material was startled by the frequent finding of acute ulcers and thereon undertook the investigation. His observations led him to the conclusion that the development of the true chronic ulcer is possible only when there is a "chronic" state of increased iritability of the vagus nerve, as, for instance, in the constitutional derangements which Eppinger and Hess[5] lately described as vagotonia.

Similarly we find that other theories have to resort to the effect of continued hypersecretion and muscular spasm in order to explain the growth and the chronicity of the ulcer. We may conclude then that the disorders of secretion and motility are much more essential factors in the pathogenesis of ulcer than the cause of the primary lesion. Very probably the primary lesion may originate in various ways, but it requires prolonged hyperacidity and spasm to produce an ulcer. Since these functional disorders account for the chronicity of the ulcer and prevent its healing, they cannot

1. Beneke, R.: Verhandl. d. Deutsch. path. Gesellsch., Kiel, 1908.
2. Rössle, R.: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1912, xxv, 766.
3. Lichtenbelt: Die Ursachen des chron. Magengeschwüres Jena (Gustav Fischer), 1912.
4. Von Yzeren: Ztschr. f. klin. Med., 1901, xlii, 181.
5. Eppinger and Hess: Von Noorden's Samml. klin. Abhandl., Nos. 9 and 10.

be considered as mere secondary manifestations of the ulcer, as is the more common view at present.

It is certainly true that, once developed, the ulcer forms a center of irritation which more easily leads to a vicious circle when the constitutional element of vagotonia is pronounced. It seems to me, however, that even under such conditions the functional disorders play by far the more important rôle, because the pronounced periodicity which characterizes the clinical course of most ulcer cases cannot be explained by the mere presence of the ulcer. The periodicity is possible only if there is a further periodic increase of the irritability of the vagus nerve, such as we often observe in spinal diseases, as the result of periods of great mental strain and anxiety, as the effect of toxin action in the course of infectious diseases and metabolic disorders from the use of narcotics, tobacco, alcohol, etc. The fact that, in examining ulcer cases, hyperacidity is often missed, cannot be put forward to disprove its presence and action at other periods during the development of the ulcer.

The correct understanding of the condition, prevailing in each individual case, is of paramount importance for the treatment of gastric ulcer. The result of medical methods of treatment depends on the degree to which they combat the functional disorders and their causes, and it is very probable that the 45 per cent. of recurrences after operative treatment could be greatly reduced, if these indications were more strictly observed.

This certainly shows how imperative it is to study functional disorders more thoroughly than heretofore and to investigate, first of all, their relation to constitutional factors, instead of depreciating them. The conception of vagotonia is a step in the right direction and although not all the assertions of Eppinger and Hess are corroborated by other authors, nevertheless their view of the constitutional character of the chronically increased vagus irritation is accepted as correct. Vagotonia is particularly frequent in cases of lymphatism. Stoerck[6] lately demonstrated that about 50 per cent. of all ulcer cases show signs of status lymphaticus. Here is further evidence of a constitutional derangement. Stoerck found in these cases aside from other manifestations of lymphatism, numerous small lymph-nodules in the gastric mucous membrane and asserted that the thin covering over these lymph-nodules was easily subject to traumatism by the stomach contents, thus providing the primary lesion. For the further development of such lesions into an ulcer he, too, had to resort to the effect of prolonged hyperacidity and the tendency to muscular spasm, which, as mentioned before, are very frequently associated with lymphatism as manifestations of constitutjonal vagotonia.

On a former occasion I reported[7] that cases which develop ulcers very often show a lack of mucus in the stomach contents and that the lack of covering by mucus facilitates traumatism of the mucous membrane as well as the digestive action of gastric secretion on the lesion.

The frequency of vagotonia and of lymphatism in ulcer cases emphasizes the importance of constitutional derangements in the pathogenesis of gastric ulcer. We have learned to understand that lymphatism is often associated with various disorders of internal secretion. I mention this here because of the large space which disorders of internal secretions occupy in medicine at present. Further investigations will have to show whether they play any direct rôle in the development of gastric ulcer. So far we have comparatively few positive facts which unmistakably point to the relation of disordered internal secretions and functional disturbances of the stomach.

This short sketch of the problems involved in the pathogenesis of gastric ulcer clearly shows what a different aspect is presented when we cease to consider only the anatomic lesions, which at present are continually brought into the forefront of the question to the exclusion of the real issues which lie behind them. Similar considerations obtain for the relation of functional disorders of the stomach and diseases of the intestines, the gall-bladder and the pancreas. They should not be considered exclusively as symptoms, for there are many facts which make it probable that disorders of the gastric function may act to a certain degree as causative factors in these diseases.

Ten years ago I discussed[8] the relation between gall-stones and gastric hyperacidity. While fully admitting that the gastric disorder is very often the result of the gall-bladder trouble, I called attention to the fact that frequently hyperacidity precedes for a long period of time the gall-bladder trouble, that the constant irritation of the duodenum by the highly acid stomach contents may provoke spasm of the opening of the common duct, resulting in inflammatory processes in the gall-ducts and thus usher in infectious cholangitis and gall-stone attacks. To my great satisfaction I find that so keen an observer as Dr. Arpad Gerster[9] independently arrives at similar conclusions in a paper in which he deals with the causes of unsuccessful surgery in disorders of the gall-ducts.

When we come to consider the relation between functional gastric disorders and diseases of the intestines we find that the irritative secretory disturbances, hyperacidity and hypersecretion, are rarely taken into consideration as causative factors in the development of diseases of the intestines; while, on the other hand, it is generally accepted that decrease and lack of gastric secretion frequently provoke intestinal disorders such as diarrhea, catarrhal conditions and faulty fermentation, followed by derangements of nutrition and metabolism, by anemia and, it is claimed in certain cases, even by pernicious anemia. Irritative disorders are valued too exclusively as symptoms at present. Fenwick is usually quoted as the most emphatic exponent of the theory that chronic hypersecretion is merely an expression of an organic lesion of some part of the digestive tract. Yet the same Fenwick[10] says: "The chronic colitis that develops in so many cases of gastric hypersecretion may eventually lead to inflammation of the appendix."

I am convinced that the further study of diseases of the digestive organs, particularly in the earlier stages of their development, will demonstrate that the inborn or acquired disposition to irritative disorders of the stomach is often a very important and causative element.

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6. Stoerck, E.: Deutsch. med. Wchnschr., 1913, p. 496.
7. Kaufmann, J.: Am. Jour. Med. Sc., February, 1908.
8. Kaufmann, J.: Am. Med., November, 1903, vi.
9. Gerster, A. G.: Surg., Gynec. and Obst., November, 1912.
10. Fenwick: Dyspepsia and Its Varieties, W. B. Saunders & Co., 1910, p. 62.

The Importance of Birth and Death Registration to the People as a Whole.—If inventory and stock-taking are essential in business, so in the field of human welfare, the registration of births and deaths lies at the very foundation.—Kingsley.

INTERNAL HEMORRHAGES; CAN WE CONTROL THEM?*

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The chief cause of internal hemorrhage, as it will be considered here, is the rupture of the wall of an artery or vein due to disease. The rarer forms of hemorrhage which occur in blood diseases like leukemia, in infectious fevers like yellow fever and malaria, in obscure conditions like purpura hemorrhagica, etc., will not be considered. The object of this paper is to discuss the best methods of medical treatment of severe internal hemorrhage.

The chief forms of internal hemorrhage commonly encountered in everyday practice are gastrorrhagia, hemoptysis, intestinal hemorrhage and hematuria. The oozing of blood from the distended blood-vessels of a mucous surface or from an ulcerated surface is to be considered only as a means of diagnosis of a possible later cause of severe hemorrhage. Hemorrhage of the type we are to consider is always an accident. The erosion or rupture of the vessel-wall is associated with a morbid anatomy involving usually the organ in which the hemorrhage has its source. Hemoptysis usually is an accident of tuberculosis pulmonum, but may occur in any destructive lesion of the bronchi or lung (gangrene, abscess, ulcer, bronchiectasis, etc.), or in heart or aorta lesions (aneurysms, valvular disease, etc.) Gastrorrhagia may indicate an acute or chronic ulcer of stomach and duodenum, ulcerated carcinoma, varicose veins (esophageal), of cirrhosis of liver (vena gastricae breves), of splenic anemia. Intestinal hemorrhage may be an accident in typhoid fever, duodenal ulcer, ulcerated carcinoma of intestines, ulcer due to tuberculosis, dysentery, mesenteric thrombosis, etc. Hematuria may be an accident due to tuberculosis of kidneys, hypernephroma or other tumor, calculus of kidney, papilloma of bladder, etc. Hemorrhage of slight degree may be important because if long continued it may produce a serious anemia. Grave anemia may prevent or retard recovery. Long-continued hemorrhage may be due to a congenital or acquired faulty blood-coagulation. The fibrin ferment to which coagulation is due is formed by the union of thrombogen and thrombokinase in the presence of calcium. Thrombokinase corresponds with the zymoplastic substance of Schmidt and is believed to be present in the tissue juices. When a vessel-wall is torn or injured thrombokinase is secreted and mixes with the thrombogen of the escaping blood to form fibrin ferment.

Hemorrhage from a ruptured or torn vessel ceases when a thrombus is formed within the vessel. Thrombus formation may be retarded or prevented by faulty coagulation due to the absence of fibrin ferment; by rigid arterial walls due to arteriosclerosis and by a gristle-like ulcer base into which the artery opens. Hemorrhage may recur from the torn vessel if the thrombus is not well fixed and is dislodged by increase of blood-pressure due to any cause. Increase of blood-pressure may also retard or prevent the formation of the thrombus. Mental emotion, physical unrest, stimulating medication and blood transfusions may therefore aggravate and prolong internal hemorrhage.

In the treatment of any internal hemorrhage an endeavor should be made to excite thrombus formation in the wounded vessel. The first principle to apply is rest, both mental and physical. Excitement of the patient, due to the sight of blood must be overcome by moral support; reassurance of recovery, firmness, a calm demeanor, and a quick and methodical procedure on the part of the physician.

Opium is the drug to be used at once, in the form of morphin sulphate, hypodermically. It produces mental calm and physical quiet. The dose should be sufficient to produce both mental and physical calm. With proper consideration of the patient's age, mental state and physical condition, the dose should be repeated to produce and hold the desired result. Absolute physical quiet should be maintained from twenty-four to forty-eight hours in severe hemorrhages in pulmonary tuberculosis, typhoid, ulcer of stomach, etc. Food is not necessary; if taking it requires an effort. Thirst may be controlled by giving small quantities of water, in all forms of internal hemorrhage, except in hemoptysis, and in that condition normal sodium chlorid or calcium chlorid solutions may be injected into the rectum in the amount of 250 to 500 c.c. every four or five hours. An ice-bag or, better still, an ice-coil may be placed over the surface of the organ from which the hemorrhage has its source. It is maintained by good therapeutists that cold so applied penetrates the tissues to a considerable depth. Probably cold as applied has a good moral effect on the patient. It probably does no harm if rationally applied and the patient is not chilled by it.

Most hemorrhages, if controllable, will cease without further treatment. If hemorrhage continues coagulation time may be roughly and yet quickly estimated by aspirating blood from a needle-prick of the ear or finger into a capillary glass tube into which is run a horse hair. The time of coagulation may be noted by drawing the hair partly out of the tube at intervals. If no other means can be used a drop of blood on a clean sheet of white paper may be watched until the approximate time of coagulation is noted. If coagulation time is prolonged over four or five minutes, one may use measures which are known to improve the coagulation time of the blood. The calcium of the blood is one of the factors which promotes coagulation and therefore thrombus formation. In all hemorrhages except gastrorrhagia, it may be given by the mouth in the form of the chlorid, phosphate, lactophosphate or lactate in the dose of 1 gm. every two to four hours. When necessary it may be given in solution per rectum.

If coagulation time is delayed because of the absence of a ferment in the patient's blood, it may be supplied by the intravenous or hypodermatic use of normal human or normal horse-serum, or even of diphtheria antitoxin horse-serum. From 10 to 30 c.c. or even a larger amount may be injected at once and repeated if necessary.

No mention has been made of stypticin, and the astringents to aid in producing thrombus formation. I have no confidence that such drugs are of any use whatever in internal hemorrhage. Drugs which are used for the purpose of constricting the blood-vessels are also useless. Ergot is so used and more recently epinephrin has been employed hypodermically to narrow the caliber of the bleeding artery. All such drugs are likely to do more harm than good. Such drugs increase blood-pressure by stimulating the heart and by causing vasoconstriction. This is quite likely to expel the thrombus and therefore to aggravate the condition.

For the same reason intravenous transfusion or a hypodermoclysis of sodium chlorid or calcium chlorid

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should not be used to check the hemorrhage. Such transfusions may be used in cases of proximate exsanguination only and then for the purpose of supplying the patient with a circulating medium.

The irrational use of stimulants like strychnin, camphor and ammonia and of heart-tonics like digitalis may be harmful. These drugs should never be used to control the hemorrhage and should be employed only to counteract dangerous collapse, the result of hemorrhage.

In some forms of hemorrhage additional measures may be life-saving. In hemoptysis due to chronic ulcer of the stomach, hemorrhage may not cease so long as the stomach is distended with blood and other contents. Lavage with normal salt solution until the stomach is empty is safe and often effective. When the stomach is empty a large dose of bismuth subnitrate may be used with benefit. Bismuth is much more efficient here than any form of iron or other so-called styptic. In gastrorrhagia the stomach must have absolute rest until the bleeding is controlled. The patient must not be permitted to take anything whatever in the form of food, drink or ice by mouth.

In typhoid, intestinal hemorrhage is especially dangerous because the patient is seriously ill and perforation of the bowel occurs in 20 per cent. of the hemorrhages. Here absolute rest is essential. The patient should not be moved to use a bedpan. The bowels should be permitted to move in a folded sheet. Fortunately the typhoid patient may be given liquids by mouth. Here there may be the more necessary use of stimulants, heart-tonics, etc., to combat the asthenia due to the disease and aggravated by the hemorrhage.

It is my opinion that internal hemorrhages are often irrationally and even harmfully treated. Too much is attempted with drugs and other measures, which not only do not control hemorrhage but probably do aggravate it.

Probably most internal hemorrhages would cease naturally before dangerous exsanguination occurs if the patient were kept quiet. To insure absolute quiet opium is the sheet-anchor in treatment. If thrombus formation is delayed use measures which are known to hasten blood-coagulation in the form of calcium and normal human or normal horse-serum or even antitoxin horse-serum.

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ABSTRACT OF DISCUSSION

DR. A. S. VON MANSFELDE, Ashland, Neb.: The pure aluminum metal, as pure as possible, ground into powder, 160 grains in one dose, mixed with glycerol (glycerin) into an emulsion like paint, will stop almost magically hemorrhage from the stomach except from larger vessels. In ulcer of the stomach it can be used again and again without the slightest harm. Ten minutes after its use in ulcer the patient is able to eat and not have pain as a result. It is mysterious and marvelous. I have been waiting anxiously for a case of hemorrhage from typhoid fever because I sincerely believe that nothing can possibly be used that will give the results of metallic aluminum for the control of hemorrhage. This is a theory of mine. I have not had a chance to try it out. In small multiple hemorrhages of the stomach I have found nothing that equals the metallic powdered aluminum. I do not think that it acts as an astringent, but as a covering of a tenacious character or, perhaps, in both ways. Esau, a German, who first used it in experiments on dogs, made artificial ulcers of the stomach and then gave the dogs this mixture, which a German manufacturer puts out in powders of 160 grains. After a little he opened the stomach and then only after repeated washings of the stomach could he find the place where he made the injury. He found it covered as a pipe is covered. Even a rusty pipe is covered with paint. This covering is so tenacious that you cannot get it off the mucous membrane of the stomach and I believe that this tenacious adherence to the mucous membrane produces the results described.

DR. L. A. LEVISON, Toledo, Ohio: I think that blood-serum in hemorrhage more nearly approaches a specific than any other remedy. I have used it in eight or ten cases, more especially of the hemorrhagic diathesis type. Most of the cases have been in children, and all have been of the stomach and bowels, although in some cases there has been hemorrhage from the external mucous membranes likewise. In some of these, practically all other remedies had been tried, calcium, astringents, gelatin, in fact, all the remedies that I have been led to believe are of value. I have had more success in stopping these hemorrhages with blood-serum taken from some healthy human being, usually the parent, than with any other remedy. I think that this remedy is not sufficiently used. The blood can be taken from the elbow, allowed to clot and the fresh serum which soon separates injected in 10 c.c. doses every two or three hours until the hemorrhage stops. There is no known dosage. The amount which stops the hemorrhage should be used.

DR. H. L. STAPLES, Toledo, Ohio: I have had in the past twenty years a rather extensive experience in typhoid fever, and I have confined myself to three remedies—rest, small hypodermics of morphin, which may be repeated, and absolute abstaining from food.

DR. RAY L. WILBUR, San Francisco: Will Dr. Billings give us his judgment in regard to the use of gelatin and extract of guinea-pig testicle in the treatment of hemorrhage?

DR. FRANK BILLINGS, Chicago: I did not mention in my paper the use of animal extracts, which are practically the same as serums. We have used them in some clinical work we have done at the Presbyterian Hospital in Chicago, and without any better result, or even as good, because we cannot control the dosage of the remedy quite so well as we can the dosage of serum. I can say less about it, therefore, than I can about the serum. There is no question that in thrombus formation calcium is a necessary ingredient. It can be used alone or in the form of gelatin. When we first used gelatin we supposed that there was some inherent quality in gelatin which influenced thrombus formation, but I think it is the consensus of opinion of those who have studied the question that it is the calcium content of the gelatin which is of value rather than the gelatin, and that on account of the danger in the use of gelatin in causing tetanus it has almost ceased to be used, in my own locality at least. Calcium is used instead. Of course, the human normal serum would be the natural remedy to use. The difficulty arises in getting this remedy promptly at hand. One has to withdraw human serum, centrifuge it and so on and, unless one takes it from a member of the family, there is a possibility that he may get a hemolytic substance and, therefore, cause injury to the patient. So far as my own experience goes the prompt use of the normal horse-serum is about as effective as the human serum and, in large cities at least, that is always at hand. I have never seen any harmful results, because the use of this serum does not extend over a long enough period to produce evil results by sensitizing the patient to that protein, and therefore we do not get the prophylaxis which would be obtained if it were used nine or ten days after the first dose. I have little confidence in the use of astringents or those substances which coat over the ulcerated surface in the stomach or bowel, because as long as the hemorrhage continues the blood is there. It is difficult for me to conceive how a remedy such as the astringent iron, which is so commonly used, can get in contact with an ulcer. Washing out the stomach is one of the best remedies to use in hemorrhage. Afterward one may apply metallic aluminum or bismuth or possibly epinephrin. The main thing I wished to bring out, aside from the causes of hemorrhage and the thrombus formation, is the uselessness of a lot of remedies which have nothing to do with thrombus formation, and furthermore the use

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of such things as stimulate the circulatory organs and therefore often defeat the very condition which we are trying to bring about. There is no question in my mind that the use of ergot and of epinephrin is harmful in an active hemorrhage. Furthermore, hypodermoclysis used from the fear that the hemorrhage is going on and that the patient is going to die is the very thing that will continue the hemorrhage.

TWO CASES OF CIRCULATORY DISTURBANCE OF THE BRAIN *

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AND
E. M. HAMMES, M.D.
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We thought it might be of interest to report to this section two quite rare and extremely interesting cases of circulatory disturbance of the brain.

CASE 1.—The first case is, in all probability, a thrombosis of the posterior-inferior cerebellar artery. It was referred to us by Dr. D. C. Jones.

History.—The patient is a man, aged 47, married, traveling salesman. He uses alcohol in moderation and tobacco in excess. Personal history is negative, except that the patient had gonorrhea at the age of 22; he denies lues. For the past four years he has had bilateral occipital headaches, more marked on the right side and more severe in the recumbent posture. Family history is negative.

Present Trouble.—The present disease began July 12, 1912. While out walking, the patient suddenly developed an attack of dizziness and staggering, so marked that he had to lean against a building to keep from falling. This lasted about ten minutes and was accompanied by diplopia and dull occipital headache. The diplopia disappeared but headache continued for three days, then stopped for one day and patient felt well enough to go fishing. The same evening he felt feverish, but slept well all night. On arising the next morning, he staggered so that he could hardly walk, and had a tendency to fall toward the right side. While washing, he noticed that the cold water felt warm to his right face and left hand. His voice was hoarse; the diplopia had returned, and he had difficulty in swallowing. During the past week he has had a slight tremor of the left arm and chin. Occipital headache was so severe in the recumbent position that patient had to sleep on four or five pillows. This headache disappeared almost entirely in about fifteen minutes after patient stood up. Physical examination was normal.

Neurologic Examination.—Both pupils were equal and reacted to light and accommodation. The fundus of the eyes was normal. Fields of vision were normal; there was no nystagmus. Mild paresis of the right internal rectus muscle was present. Corneal reflex on right side was lost, on left side normal; there was slight drooping of right upper eyelid. On the right side of the face, over the area supplied by the first and second branches of the trigeminal nerve, pain and temperature sense were impaired, while tactile sense was normal. Over the remainder of the face all sensations were normal. Taste sense was normal. There was mild paresis of right facial muscles. Hearing was normal. There was mild paresis of right soft palate and right vocal cord. Patient's voice was hoarse and he swallowed with difficulty. There was no paralysis of the tongue muscles. Romberg was marked, patient being unable to stand alone, his eyes open and legs spread. The examination of the extremities showed the following: muscular strength normal in upper extremities. No ataxia; reflexes normal. In the lower extremities there was no loss of muscular strength. Knee-jerks and Achilles tendon reflexes normal and equal. Babinski and Oppenheim present on right side, absent on left side. No ankle-clonus. Tactile sense normal throughout, while pain and temperature sense were markedly impaired over left arm and left leg and left half of the trunk except the neck region. Deep sensations normal, no astereognosis. All superficial reflexes normal. The Wassermann in the blood was negative. Blood-pressure 138 mm. Hg. Urine normal, except for presence of sugar, 5.4 per cent. Patient voids 68 ounces of urine in twenty-four hours.

Progress of Case.—With rest in bed and increasing doses of potassium iodid he gradually improved. Diplopia and headache disappeared entirely in a few weeks. Sensation improved except over the right face, where it is still impaired. There is also a constant feeling of tightness in the throat. Improvement continued for six months, but on Dec. 7, 1912, patient had a similar mild attack, lasting about ten days and accompanied by occipital headache, hoarseness of speech and difficulty in swallowing. Since then he has made favorable progress and for the past two months has been attending to business regularly. The sugar in the urine still remains and varies between 1 and 8 per cent., and the daily amount of urine excreted is about 120 ounces. The sugar output is not affected by diet, and the patient shows no other symptoms of diabetes. Two years ago he was examined by an insurance company and at that time the urine was normal.

Summary.—Reviewing the case briefly, we have the following: Severe occipital headaches for the past four years, more marked in the recumbent posture; sudden attack of vertigo and diplopia, followed five days later by an attack of staggering, hoarseness, difficulty in swallowing and impaired pain and temperature sense over the right face and left extremities. A negative Wassermann in the blood, a blood-pressure of 138 mm. Hg and urine loaded with sugar. Patient had a mild similar attack six months later. With rest in bed and potassium iodid he made a practical recovery except for sensory involvement of right face, a feeling of tightness in the throat, and persistent glycosuria.

The localization is not difficult; the involvement of the vocal cord, the difficulty in swallowing and the disturbance in speech point to a lesion in the medulla, at about the level of the ambiguus and the glossopharyngeal nuclei. Through this region also passes the spinal portion of the fifth nerve. According to Schlesinger, pathologic-anatomic studies have shown that the arrangement of the fibers from the centers of the fifth nerve are such that those in the distal portion supply mainly the first and second branch, while the proximal portion of the spinal trigeminal root supplies the third branch and controls the sensations of the lower jaw and taste. In our case, the third branch was not affected at all; hence, the lesion could not have extended into this region.

Henschen, in reporting a case similar to ours, remarks that tactile fibers ascend in the posterior columns and are next to the raphe. Therefore, they usually escape in these bulbar lesions. He also states that he has demonstrated in several cases that destruction of the fillet causes loss of tactile as well as of pain and temperature sensations; therefore, the latter fibers enter the fillet more proximally than the medulla oblongata. According to Müller, the spinal tracts for pain and temperature sense decussate soon after their entrance into the posterior horns and ascend by way of the spinotactile and spinothalamic tracts. This accounts for the loss of pain and temperature sense on the side opposite the lesion. The marked ataxia and the tendency to fall to the right point to an involvement of the right cerebello-olivary tract and the restiform body. The dysarthria is due to involvement of the hypoglossus nucleus and must have been slight on account of its transient character. The paresis of the right internal rectus and the involvement of the muscles of the right

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face point to a lesion of the abducens and facial nuclei. This must have been of a very mild degree, however, for both the diplopia and the facial paralysis entirely disappeared in a few days. The occipital headaches of four years' duration might suggest a brain tumor, but the subsequent improvement and the absence of signs of intracranial pressure readily eliminate this probability. The change in the severity of the headaches, in different position (that is, more marked in the recumbent posture and milder in the erect), points to a circulatory disturbance, probably of arteriosclerotic nature.

E. Schwarz reported a similar condition in his case. Although our patient had a normal blood-pressure and no signs of arteriosclerosis, one must not forget that isolated arteriosclerosis of the cerebral blood-vessels is quite common. Bonhoeffer, in a recent article, discusses this at length. Both Mann and Marburg have spoken of the occurrence of central pains, especially in the region supplied by the trigeminal and occipital nerves in lesions of the pons or medulla, and believe that they are due to a variation in the filling of the arteriosclerotic blood-vessels. According to Oppenheim, neuralgic pain of several years' duration may be a prodromal symptom of a subsequent thrombosis. These facts might help to explain the headache of four years' duration in our patient. In Bonhoeffer's case the occipital pains ceased soon after thrombosis of the artery had taken place, this being similar to what occurred in our case. According to Duret and Senator, the left vertebral artery is usually the seat of the obstruction, possibly because its course is more in the direction of the subclavian artery and also because it has a greater blood-pressure.

Wallenberg, after carefully studying the course of the injected vertebral blood-vessels, reports the following:

Each of these arteries gives origin about 2 cm. below their union to the posterior-inferior cerebellar artery and higher to the anterior spinal artery. The latter artery passing downward enters the raphe and supplies the interolivary bundle, the posterior longitudinal bundle, the hypoglossus nucleus and other nuclei below the floor of the fourth ventricle. The pyramids are usually nourished by the vertebral arteries. Branches from the posterior-inferior cerebellar artery or the vertebral artery supply the lateral portion of the medulla oblongata, while the posterior-inferior cerebellar artery also supplies the restiform body.

We are at a loss to account for the persistent and marked glycosuria. It is quite possible that we are dealing with a simple case of diabetes. But the only symptoms pointing to this are the polyuria and glycosuria. Strümpell states that quite occasionally one finds a marked glycosuria following a brain hemorrhage. Müller reports a case of thrombosis of the posterior-inferior cerebellar artery accompanied by transient glycosuria and albuminuria. According to Morris, from the posterior-inferior cerebellar artery, branches are given occasionally to supply the chorioid plexus and the fourth ventricle. Could it be possible that the floor of the fourth ventricle has been irritated sufficiently to produce this glycosuria?

It would have been of interest to study the cerebrospinal fluid at the time of the first examination, but conditions were so serious that it did not seem justifiable to advise a lumbar puncture.

The brain circulation, according to Duret and Huebner, can be divided into two groups, the system of the cortical arteries and that of the central arteries. The cortical system anastomoses freely with the blood-vessels of the pia, and also with itself. After the blood-vessels have entered the cortex anastomosis no longer occurs (Beevor). The central arteries have been considered strictly end-arteries, but according to Hirsch this will bear further investigation. Kolisko has shown that the chorioid arteries anastomose with the lenticulo-optic and lenticulostriate arteries, while Wallenberg, through careful studies of the circulation of the medulla, has pointed out that anastomosis occurs much more extensively in the arteries of this region than was formerly supposed. Frequently the symptoms following disturbed brain circulation are entirely out of proportion to the slight extent of the pathologic lesion found. This probably is due to reestablished circulation of the anastomosing blood-vessels. Thomas reports a case of thrombosis of the posterior-inferior cerebellar artery in which at autopsy no necrosis was found in the medulla, and he explains its absence by the rich collateral circulation.

Case 2.—The second case that we have to report is a ruptured brain aneurysm. The case was referred to us by Dr. George Earl.

History.—Patient is a woman, 44 years old. Family history is negative. Patient suffered frequently as a child from severe headaches, which were entirely relieved by wearing glasses. At 32 she had a fall from a swing and was unconscious for a short time. For the past three years she had been in the best of health. After eating her mid-day dinner, Jan. 26, 1913, she went to her room and about four hours later some one heard a commotion and found that the patient had fallen down stairs. She had vomited and was semiconscious. With help she walked upstairs, but soon developed a restless delirious state. This condition lasted until her death, six hours later.

Examination.—The patient was cyanotic; her breathing was stertorous. The reflexes were normal; there seemed to be a slight flaccid paralysis of the left lower extremity. The background of the eyes was normal. There was no involvement of the cranial nerves. The physical examination revealed nothing definite; the blood-pressure was 90 mm. Hg. and the urine was normal.

We suspected a pachymeningitis hemorrhagica or an acute menigitis, and advised a lumbar puncture. This was done and apparently pure blood under pressure escaped from the needle. During the process of the lumbar puncture, the patient suddenly died.

The centrifuged spinal fluid gave a heavy reddish precipitate, leaving the supernatant fluid a yellowish color. The examination of the precipitate showed many normal red blood-cells, a few polymorphonuclear leukocytes and a few lymphocytes. No bacteria were found. This aided us in making a diagnosis of a recent hemorrhage into the subarachnoid space.

Post-Mortem.—This was performed seventy-two hours later. There was nothing particular to note in the organs of the thorax and abdomen except an hour-glass stomach. The skull was of normal thickness. The dura was nowhere adherent. There was no indication of a fracture of the skull. When the dura was opened the brain was found bathed in blood. Blood-clots were seen, especially at the base of the brain. The blood was readily removed by washing and a small ruptured aneurysm, about the size of a hazelnut, was found near the bifurcation of the left posterior cerebral and the posterior communicating arteries. It is of interest to note that there were no previous symptoms indicative of an intracranial lesion.

According to Krey, rupture of a brain aneurysm occasionally occurs without any prodromal symptoms, but usually headache of a paroxysmal nature and pain in the neck and occipital region are present for some time

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previously. It is quite common to have involvement of some of the cranial nerves, especially the oculomotor and the optic. Krey bases his observations on 108 cases from the literature and his own material. Blowing murmurs on the skull, synchronous with the pulse and disappearing by compression of the carotid arteries, are very characteristic. But a similar blowing murmur may occur in angiosarcomas, in tumors of the corpora quadrigemina pressing on the vena magna galeni, in internal hydrocephalus, and occasionally in normal healthy children. Sometimes brain aneurysms are accidentally found at post-mortem. During life they frequently produce no symptoms up to the time of rupture and then death usually results. According to Lebert and Hey this occurs in over 50 per cent. of all cases. They usually occur at the base near the bifurcation of the larger cerebral blood-vessels; the sylvian, the basilar and the vertebral arteries are most frequently involved. The aneurysm is usually sacculated, but the spindle-shaped variety also occurs. The size varies from that of a pea to a hen's egg. The arteries on the left side are more frequently involved than those on the right. Although brain aneurysms are quite rare, they occur more frequently than in any other arteries of the body. They may occur single or multiple. Nothnagel reports a case of luetic endarteritis in which three brain aneurysms were found, two of which had ruptured at the same time. Clinically it is often quite difficult to differentiate this condition from a pachymeningitis or an acute meningitis. The examination of the cerebrospinal fluid is a valuable diagnostic aid, for in almost no other condition can one find the amount and abundance of blood in the spinal fluid.

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ABSTRACT OF DISCUSSION

DR. SANGER BROWN, Chicago: With reference to the first case reported, I should like to ask about the sense of taste in the anterior two-thirds of the tongue on the side of the facial anesthesia caused by involvement of the two upper branches of the fifth nerve. The diagnosis will, I think, have to be, as I presume is intended, a provisional one, that is, as to the actual cause giving rise to the symptoms. In view of the history I should not be surprised if, after all, we had to deal here with a case of brain tumor and cerebral anemia. The course of the symptoms would suggest the possibility of such a condition, and even though the diplopia perhaps and especially the vertigo and the very severe attack lasted only a few days, it is very likely that those symptoms were due to alteration in the blood-supply caused probably by the presence of a cerebral tumor. It seems most reasonable to me to assume that it is a tumor and that this is the cause of the persistence of the sensory disturbance in the region of the two upper branches of the fifth nerve. I think it is generally conceded now that the sense of taste in the anterior two-thirds of the tongue passes to the brain through Meckel's ganglion, which, of course, is connected with the second branch; therefore, one would hardly expect those symptoms. It would be inconceivable for me to think of a circulatory lesion, or any lesion except a small neoplasm, that would produce the persistence of so definite a focal symptom; whereas by assuming that there is a small neoplasm it would not be a long shot to suppose that its presence would cause just such a circulatory outbreak as seems certainly to have occurred in this case.

DR. CHARLES R. BALL, St. Paul, Minn.: I am somewhat surprised at the diagnosis of arteriosclerosis. It seems to me that the description gives an excellent picture of the symptoms of a vascular syphilitic endarteritis. The dizziness and occipital headache which preceded for some time the outbreak of the other symptoms; the glycosuria and polyuria, which are, as is now known, many times the accompaniments of vascular syphilitic endarteritis, particularly when the lesion is in the region of the inner peduncular space; the transient character of the paralysis and the great tendency to relapse, these relapses occurring over a period of a few months; the improvement, and the fact that by the multiple character of the lesion the mentality is so little impaired, would seem to me to make the diagnosis of arteriosclerosis very unusual. The really important observation in deciding the question definitely would have been an examination of the spinal fluid, which in all probability would have settled the diagnosis.

DR. H. E. CONLEY, Cannon Falls, Minn.: I followed Dr. Hammes carefully, wondering what he was going to do with the glycosuria, what relation this had to the trouble, whether a causative effect or simply a coincidence. It reminded me that some time ago I had a case in which some of these symptoms appeared, especially the recurring dizziness and the inclination to fall, with some headache but not so marked. It was some time before the diabetic condition was discovered, but as soon as it was, without other treatment than diet the dizziness entirely disappeared and the other symptoms were very much improved just by diet alone.

It would be interesting to have this question answered, if possible, in detail: What relation did the glycosuria bear to this trouble?

DR. ROSS MOORE, Los Angeles: I should like to ask Dr. Hammes to tell us whether or not there was any respiratory symptomatology at the beginning of the attacks in this first case, which would be at all like that described by Dr. Kramer in his paper.

DR. C. EUGENE RIGGS: Four of these cases have been reported in the United States, two by Spiller in an article he presented on this subject before the American Neurological Society two years ago. The clinical syndrome of those two cases was exactly like that in the case presented this afternoon, and these two cases were followed by necropsy which proved conclusively that this was the type of trouble that we have to deal with. Of course, I am aware of the fact that only a necropsy would absolutely prove this contention. We were open to criticism with reference to not examining the spinal fluid. But sometimes, I think, the patient ought to be considered, and whenever there is an intracranial pressure or an intracranial neoplasm it is our practice never to make lumbar puncture.

DR. E. M. HAMMES: Answering Dr. Brown's question, the case was normal for the higher tongue, there being no response to taste. The possibility of brain tumor we considered very seriously, and excluded it on the history of four years' duration, on the absence of intracranial pressure, and on the fact that if the lesion, which undoubtedly lies in the cerebellar region or floor, were in the brain, the pressure would be great and we should get a choked disk in that time. Another point, which might exclude tumor is that since December the patient has not had any headache whatsoever.

Dr. Ball spoke of the multiple character of the lesion. It struck me that this lesion was interlocular as much as any lesion could be. The location must be such that it impinges on the glossopharyngeal nucleus. The pain and temperature sense caused by involvement of the proximal portion of the fifth nerve, and the transient paralysis of the sixth and seventh nerves is, I think, readily explained by the transitory circulatory disturbance and the close relation of the other nuclei. One reason why we did not perform lumbar puncture was the first result of diagnosis. We felt that the man had cerebral tumor with subsequent hemorrhage, and we thought that if we performed lumbar puncture at that time we might stir up trouble.

In regard to Dr. Moore's question, there was no respiratory disturbance when I saw the patient about twelve hours after the onset of the attack. The patient has given us the promise of a post-mortem when the time comes, so I hope that we shall be able to report more fully on the case in years to come.

SOME ASPECTS OF HYDROTHERAPY IN THE UNITED STATES *

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In this paper it is intended briefly to refer to some of the features of administration connected with the application of the waters of the hot springs of Arkansas to the relief and cure of disease, and to plans for extending the benefits to be derived from their use through further scientific research to determine more accurately their physiologic and therapeutic effects.

The Indians had unlimited faith in these waters and believed the "Great Spirit" ever present in them. There is a legend that the various tribes fought for their control until finally a truce was declared, a neutral zone established and the sick accorded equal privileges.

Belief in the efficacy of the waters became so general that in 1832, Congress passed an act establishing a federal reservation about the springs for the purpose of conserving them for the benefit of the people of the entire country. It would appear also to have been the intention of Congress to provide for the growth of a municipality under the jurisdiction of the federal government, for the act decreed that the reservation should consist of 4 square miles with the springs as nearly as practicable in the center. For many years thereafter the reservation received little attention. Sick wives or husbands were brought to the springs for treatment long before the days of the railways, making the trip in a prairie schooner and accompanied by the entire family. Huts and houses were built, and thus there grew up a little community of squatters on the federal reservation. As the local commercial interests developed there arose various feuds and differences with reference to property rights and water privileges, until finally in 1877 Congress appointed a commission to adjust conflicting claims. The final outcome of the work of the commission authorized the squatters to purchase the land on which they had built their homes, streets were laid out and ceded to the town, and the federal government relinquished jurisdiction over a large part of the original reservation, which was thus reduced in size to 911 acres with the boundary line between the federal territory and the state moved close to the springs. From that day to this jurisdiction has been divided between the federal government and the state.

By the act of 1891 the secretary of the interior was authorized and directed to make regulations governing the use of the waters from the springs. Under this general authority rules were formulated regulating the operations of the bath-houses and granting or denying to physicians the privilege of prescribing the baths.

Much has been done by the government in developing the reservation into a most attractive park with many miles of well-kept drives and walks affording features of recreation and attractions of outdoor life that may justly be classed as adjuvants to treatment. The relation of the government to the resort is such that there may fairly be said to be an obligation for appropriations available for the further development of these features and for such public utilities and services as are necessary in maintaining the best sanitary conditions.

A prominent physician has recently been elected mayor on the platform of protecting and furthering the interests of patients and of visitors, and a new board of health has been appointed composed entirely of physicians.

The practice of fee-splitting has been vigorously fought by the local medical society and by the government officials. So much of this evil as remains is neither more nor less objectionable at Hot Springs than in other cities except for the fact that the government ownership of the springs and the granting of authority to physicians to prescribe the waters is commonly accepted as a guarantee of ethical practice.

Gambling in all its forms has been eliminated from the resort and it is now fully realized that the most assured financial success of the community rests in its complete and final extinction.

Several years ago inspection reports were made to the Secretary of the Interior by General O'Riley, late Surgeon-General U. S. Army, Lieutenant-Colonel Carter, Medical Department, U. S. Army, Dr. White, Superintendent of St. Elizabeth's Hospital, Washington, D. C., and by the chief clerk of the Department of the Interior for the purpose of determining what steps were practicable for affording improved facilities for the treatment of patients.

The following is an extract from the report of Dr. White:

> **The whole problem of the application of the waters of the Hot Springs to diseased humanity is a therapeutic problem and hence absolutely a question within the domain of medicine, and I cannot be too emphatic in my recommendation that the entire plant should be under medical supervision and subject to medical inspection.**

Acting on the recommendations contained in these reports the office of medical director was established in 1910, with the following duties assigned by the department:

1. Full supervision of sanitation, hygiene and hydrotherapy—in short, all that pertains to the bathing of patients in the leased bath-houses both on and off the reservation.

2. Full charge of the government bath-house and the employees therein.

3. Maintenance of a clinic for the education of bath-house operators and their attendants.

4. Determination of the fitness of all attendants physically and otherwise, for employment in bath-houses, both those operated by lessees and the government bath-house.

On assuming the duties of the office it was found that there were certain conditions, customs and practices in the bath-houses that were unsatisfactory. In general they were such as would naturally be expected where the baths and other forms of treatment were administered without medical supervision.

In years past hospital patients were nursed by those without special training and the sick of the Army and Navy cared for by men detailed from the line. Better service was demanded. It was provided in civil hospitals by training nurses, in the Army and Navy by the establishment of the Hospital Corps.

To improve the service rendered in the bath-houses the same general policy was adopted. Attendants were instructed in their duties and those found efficient licensed. In the renewal of these licenses from year to year the best have been retained and the inefficient dropped. Through this policy the service has been

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Dr. Harry M. Hallock died suddenly, May 19, 1913. The paper was read by Dr. Kay L. Wilbur, San Francisco.

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brought to a much higher grade of efficiency. Head attendants have been appointed in each department and the baths and other forms of treatment are carefully and accurately administered. There are twenty-three bath-houses employing between 200 and 300 attendants carrying out the bathing directions of nearly 150 physicians. Constant supervision is, of course, necessary to maintain the best service.

To improve sanitary conditions in the old bath-houses, lessees were required to submit plans for remodeling or rebuilding before their leases were renewed. Through this policy new houses have been built and are now in operation. They are fire-proof in construction, finished in marble and tile, provided with sanitary plumbing and blast ventilation, equipped with modern forms of hydrotherapeutic apparatus and they provide every facility for the use of the water as a remedial agent.

Thus it will be noted that marked progress has been made in the last few years in abolishing or reducing to a minimum objectionable conditions, customs and practices of the past, and in providing greatly improved sanitary conditions and facilities for treatment in the bath-houses, and more efficient service by the bath attendants. Under the improved conditions, the popularity of the resort has steadily increased until now the annual patronage is about 100,000.

Physicians who have prescribed the waters for years hold slightly different views as to the physiologic effects produced. Among those noted by different observers are an increase in the temperature of the body of from one to several degrees above that of the water, an increase in the rapidity of the pulse, a decrease of tension in the arteries, distention of the veins, and increased metabolism, both eliminative and constructive. Constructive metabolism is noted in chronic malaria, in which after a few baths the increase of hemoglobin is marked. The benefits desired from increased elimination are manifested in rheumatism, in auto-intoxication, in chronic alcoholism and in syphilis, making it possible in the latter disease to administer unusually large doses of mercury and potassium iodid.

The therapeutic effects are commonly attributed to the increased metabolism, and this in turn to the radio-activity of the waters, which has been shown to be of a high degree by the analysis of Boltwood of Yale University. Later analysis by Schlundt of the University of Missouri indicates that the tufa deposits about the springs are also quite radio-active.

The physiologic and therapeutic effects are not due to the high temperature of the water as it issues from the springs, for it is always cooled for bathing and the baths are seldom prescribed above 98 F., nor is anything shown by chemical analysis which satisfactorily accounts for the beneficent results obtained.

Benefit may be expected from the use of the waters in gout or rheumatism after the inflammatory stage; in neuralgia dependent on gout, rheumatism, malaria, or metallic poisoning; in the early stages of chronic Bright's disease; in catarrhal conditions of the gall-bladder and functional disorders of the liver; in chronic malaria; in syphilis; in chronic skin diseases, especially the squamous varieties; in chronic alcoholism and drug addictions; in toxemias due to defective elimination, and cardiovascular disease with increased tension in the arteries. The general tonic and recuperative effects are marked in conditions of debility and neurasthenia due to the strain and fatigue incident to social and business cares and responsibilities. The baths are positively contra-indicated in tuberculosis of the respiratory tract and in all forms of cancer.

In recent years the therapeutic value of mineral springs has with increasing insistency been brought to public notice, and the failure to more scientifically utilize these natural resources of our country has been deplored by many. The recent discovery of radium and its remedial properties in certain diseases, together with the later observation that the waters of certain mineral springs which for years have enjoyed the reputation of affording relief or effecting cures after other measures of treatment have failed could not be satisfactorily accounted for by the chemical constituents of the waters, has attracted much attention with the result that some of the foremost laboratory workers are now engaged in studying through modern methods of research the action of radio-active waters on the living organism.

The Section on Pharmacology and Therapeutics of the American Medical Association at the Session of 1911 passed the following resolution:

> Owing to the importance attributed to radio-active mineral waters in the treatment of gouty and other affections by competent European observers and the special interest excited by the symposium on the subject at the Thirty-Second Balneologic Congress recently held in Berlin, the Section on Pharmacology and Therapeutics of the American Medical Association requests the House of Delegates to suggest to the United States government the advisability of investigating the radio-activity of the various mineral waters of the United States and publishing the results for the benefit of the medical profession.

The fact that the hot springs of Arkansas are owned and the use of the waters regulated and controlled by the government renders it particularly appropriate that such research should be instituted with reference to these waters. The desirability and practicability of the work was carefully considered by the officials of the department and by the physicians who are members of the Federal Registration Board. The advice of prominent medical men in different parts of the country and of local practitioners was also sought and, the consensus of opinion being strongly in favor of such research, the following bill was prepared and introduced at the last session of Congress:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of fifty thousand dollars, or so much thereof as may be necessary, be, and the same is hereby appropriated to investigate the physiologic and therapeutic effects of the waters of the hot springs of Arkansas and to report on the application of these waters to the alleviation and cure of diseases, including the employment of all persons necessary in carrying on the work, the purchase of laboratory apparatus, equipment and other supplies, the renting of building and other appurtenances, and all other expenses necessary to effectuate such investigation, to be expended under the supervision of the Secretary of the Interior and to continue available until expended.
>
> SEC. 2. That the Secretaries of the Treasury, of the War, of the Navy and of the Agricultural departments, respectively, are hereby directed to cooperate with the Secretary of the Interior in such investigation, by detailing competent officers, and by extending all hospital, laboratory and other facilities necessary and desirable in the carrying on of such investigation.

The report of the Secretary of the Interior on the bill was published and sent to the professors of practice of medicine and of materia medica in the Class A medi-

cal colleges, to prominent biologic chemists and to the presidents and secretaries of the state societies with the view of determining whether or not the research contemplated was legitimate and proper from the point of view of clinical medicine and likely to yield results of value to the profession and through them to the sick. A large number of letters from men of recognized standing in the profession were received in reply and with few exceptions the work was heartily endorsed. There was considerable local opposition to the bill by the laity. It was not reported by the committee and consequently did not pass.

It is requested that this representative body of the medical profession will assist the department in determining the advisability of reintroducing the bill at the next session of Congress. If the research contemplated is not likely to yield tangible results or for any reason is inadvisable, the department desires to know that fact. If it is probable that through modern methods of research combined with carefully conducted and controlled clinical observations as to the effect of radio-active waters on the living organism both in health and in disease, further information can be obtained that will be of material value in extending the benefits to be derived from the use of these waters, it is hoped that the Association will endorse the proposed research by appropriate resolutions.

ABSTRACT OF DISCUSSION

DR. RAY L. WILBUR, San Francisco: I think it important for the government to investigate these waters and give the profession an opinion.

DR. W. H. WITT, Nashville, Tenn.: Is it intended to limit the investigation to radio-active waters? Does the term "radio-active" apply to all the waters of the Hot Springs? If an investigation is going to be made it should include all the therapeutic waters found at the Hot Springs and, if there is a limitation, that is, if some are radio-active and some are not, I think that it would be well to leave out the word "radio-active" and have the title read simply "The Therapeutic Waters Found at the Hot Springs."

DR. C. F. MENNINGER, Topeka, Kan.: We are far behind in the utilization of the radio-active waters of this country in comparison with Continental Europe and because of their unquestioned virtue and value, especially in the cure of all forms of joint disease, I think that we ought to take advantage of such an offer as that which Dr. Wilbur suggested in his paper.

MR. M. I. WILBERT, Washington, D. C.: An investigation is going on now at Hot Springs; Dr. Reid Hunt and Dr. E. C. Franklin are in charge. It might be well to wait until their report is published and then, if necessary, introduce a resolution next year and have it acted on by the House of Delegates.

The Value of Human Life.—It is my belief that it is unwise to emphasize the financial side of the public health question in quite the way, or quite so much, as has been done of late. Life and health are cherished by all. It needs no argument to prove that it is good to be well and that it is wise to spend money for health. It is proper to consider cost in relation to results and financial savings, when such can be figured with accuracy, but there is much in the world which cannot be measured in terms of money, though to so measure it is doubtless the tendency of the age. Should we not place our profession on a higher level by resisting this tendency instead of yielding to it? Is it not dangerous to rely on a balance-sheet of life and death when there are so many chances of error in our calculations? Is it not enough to urge expenditures for the preservation of health because the happiness of mankind will be promoted thereby?—Charles V. Chapin, M.D., in *Am. Jour. Pub. Health.*

CLINICAL SIGNIFICANCE OF THE CEREBROSPINAL FLUID IN NERVOUS AND MENTAL DISEASES

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The examination of the cerebrospinal fluid is of great diagnostic aid in differentiating certain types of nervous and mental diseases. Before attempting to discuss the phenomena of the cerebrospinal fluid in diseased conditions it would not be amiss to emphasize a few important facts regarding its anatomy, physiology and chemistry.

The cerebrospinal fluid is found in the arachnoid spaces of the brain and cord. The walls of these spaces are formed by the inner portion of the arachnoid and outer part of the pia. There is a free communication of the fluid of the brain with that of the cord. It is also probable that the fluid of the ventricles comes into contact with subarachnoid spaces. Through lymph-channels and venous ramifications the subarachnoid spaces communicate with subdural spaces, and in a similar manner connection of the venous sinuses of the dura, especially of the longitudinal sinus, is established. The source of secretion of cerebrospinal fluid is said to be in the chorioid plexus. Others maintain, however, that it is a lymph transudate, mainly a specific product of the brain substance. It is most probable that the fluid is a mixture of both secretion and lymph transudate (Plaut, Rehm, and Schottmüller).[1]

The cerebrospinal fluid exercises three important functions: First, it serves to protect the central nervous system. Second, it acts as a reservoir, regulating the inflow and the outflow of the fluid in the various parts of the central nervous system. During dilatation and contraction of the blood-vessels the fluid aids in keeping up the physiologic equilibrium of volume alteration, and similar activity is noticed in pathologic conditions of the brain and spinal cord, such as tumor growths which produce disturbance of special relations. Third, the fluid takes up decomposition products of the metabolic changes of the brain and assists excretion; albuminoid compounds, lipoid substances, etc. are examples.

The cerebrospinal fluid is thin and water-clear and of low specific gravity (1.003 to 1.008). The reaction is decidedly alkaline. Its chemical composition is as follows:

Water—98.74 per cent.
Solids—1.25 per cent.
- Albumin (in form of globulin and albumose)—0.03 to 0.6 per cent.
- Dextrose—0.4 to 1 per cent.
- Potassium salts, phosphate and urea—0.15 to 0.35 per cent.

In the normal fluid one finds from 1 to 5 lymphocytes per cm. and, indeed, in some instances no cells could be demonstrated.

LABORATORY METHODS

The examination of the fluid should be directed along the following lines: first, chemical; second, cytologic; third, serologic, and fourth, bacteriologic.

Chemical Examination.—The tests for detecting albumin in cerebrospinal fluid are as follows:

1. Plaut, Rehm, Schottmüller: Leitfaden zu Untersuchung der zerebrospinal Flüssigkeit, 1913.

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1. Nonne's Test: Equal parts of cerebrospinal fluid and hot saturated ammonium sulphate solution are mixed; a trace of opalescence—turbidity—indicates the presence of albumin; this is phase 1, which usually appears three minutes after the fluids are mixed. This phenomenon invariably occurs in pathologic conditions. On the addition of acetic acid to the former solution turbidity is noticed; this is known as phase 2, and may be observed in normal states.

2. Ross-Jones' Test: Two cubic centimeters of ammonium sulphate are slowly applied by contact to 1 c.c. of cerebrospinal fluid. The forming of a ring indicates the presence of albumin.

3. Noguchi's Test: One cubic centimeter of cerebrospinal fluid and 5 c.c. of pure butyric acid are heated; then 1 c.c. of 7 per cent. solution of caustic soda is applied.

4. Kaplan's[2] Method: "Five test-tubes 1 cm. in diameter each receive 0.5, 0.4, 0.3, 0.2, and 0.1 c.c. of spinal fluid to be analyzed. The tubes containing less than 0.5 c.c. of spinal fluid are brought up to that quantity by the addition of distilled water. Each tube is gently boiled, and 2 drops of 5 per cent. butyric acid in normal salt solution are added and the fluid is boiled once more. Immediately after the second boiling each tube receives (underfloated) 5 c.c. of a supersaturated ammonium sulphate solution. The tubes are set aside and the reading taken twenty minutes later. At the end of this time an excess manifests itself in the form of a thick granular cheesy ring."

Brief mention must be made of the "goldsol" test which enables one to detect small traces of albumin. The preparation of the reagent is complicated and the entire procedure of the test is difficult. Four per cent. sodium chlorid is mixed with cerebrospinal fluid and treated with colloidal gold; the normal fluid will retain the red color of the "goldsol." Precipitation of "goldsol," however, no matter in what dilution, has a definite pathologic significance.[3]

The dextrose in cerebrospinal fluid is detected by the Fehling test.

Cytologic Examination.—There are three methods by which the fluid is examined for cellular elements: first, the French method; second, the Fuchs-Rosenthal method; and third, the Alzheimer method.

1. The French Method: This was introduced by Widal and Rivaut in France and by Nissl in Germany, and may be described as follows: Five cubic centimeters of the fluid are centrifuged in a test-tube with a conical base for about twenty or thirty minutes; the fluid is decanted and the sediment removed by a capillary tube, and one drop is placed on each of three different slides; it is dried in the air, and later fixed in alcohol and ether and treated with any of the blood-stains. The specimens are examined under 1/12 oil immersion. In a negative slide one finds here and there an isolated lymphocyte and at times none at all. In a positive slide the lymphocytes are lumped together and may be so numerous as to make it impossible to enumerate them. By this method we get only a rough estimate of the cytologic phenomena, an estimate by no means accurate. One who has had the opportunity to examine several scores of such slides, experiences no difficulty in sizing up the microscopic picture.

The Fuchs-Rosenthal Method: This is far more accurate than the method described above. Its advantages are: 1. A small amount of fluid is required, and this is especially important in tumors of cord and brain in which withdrawal of too much fluid is detrimental to the patient. 2. It can be done at the bedside and less time is consumed. 3. The cellular elements are better stained and rendered more accessible to interpretation. The Fuchs-Rosenthal counting-chamber is a modified blood-counting apparatus (Seiz, Jena, Eimer and Amend, New York). The pipet is filled with methyl-violet solution (methyl-violet 1, glacial acetic acid 2, and water 500), to mark 1, and the fluid to 11; thus we have a solution of 10 parts of cerebrospinal fluid to 1 part of the staining material. Two hundred fifty-six squares are counted and the number of cells are multiplied by 11 and divided by 32: Formula — cells $\times$ 11 $\div$ 32.

Alzheimer's[4] Method: This method is employed for studying various differentiations of the cellular elements; karyokinesis can be observed; the plasma cells can be easily demonstrated and, in general, the morphology can be studied with more precision and accuracy. I may briefly refer to the technic of this method: In a centrifugal tube with a conical base is put from 10 or 15 cm. of 96 per cent. alcohol and then 5 cm. of cerebrospinal fluid are added. The tube is closed with a rubber stopper. It is allowed to be centrifuged for from one-half to three-quarters of an hour. Then there will be noticed at the bottom of the tube a distinct coagulum which is marked in general paralysis, cerebral-syphilis and meningitis, but which in normal subjects has the thickness of ordinary paper. The alcohol is poured off and the coagulum is fixed with alcohol, ether and alcohol and ether. The coagulum becomes thick; it is taken out with a fine needle and embedded in celloidin and sections are made.

The following staining material may be used: Unna's polychromes, methylene blue, Unna's modification of Pappenheimer's stain, or methyl alcohol. Without encountering special difficulties any of the following agents may be substituted for alcohol; sublimate following with triacid stain, Fleming's solution and Altman's stain, Formo-Müller and Zenker's fluid, and Giemsa's stain after Schridde. For the last two fixing materials paraffin is used. The coagulum is passed through xylol. For alcohol fixation the sections are cut from 10 to 15 microns thick; for other fixations from 3 to 5 microns thick.

The fluid is examined for the Wassermann test in the usual manner and the bacteriologic examination for tubercle bacilli, *Diplococcus intracellularis meningitidis*, etc., is made in cases which indicate such a procedure.

CLINICAL ASPECTS

Indication for Lumbar Puncture.—All forms of meningitis, syphilitic, and metasyphilitic disorders of the central nervous system, tumors of cord, poliomyelitis, and other conditions in which differentiations from luetic or metaluetic conditions are necessary.

Contra-Indications.—Extreme exhaustive states; advanced cardiac affection and arteriosclerosis and cerebral tumors of the posterior fossa. The last withdrawal of fluid is liable to cause occlusion of arachnoid spaces.

Methods of Lumbar Puncture.—Both the sitting and recumbent positions are employed; the former is preferable, however, provided the patient is not too sick.

2. Kaplan: The Laboratory Differentiation Between General Paralysis and Cerebrospinal Fluid, Am. Jour. Insan., 1912, lxix, 340.

3. The reader is referred to Lange's original article, Ueber die Ausflockung von Goldsol durch Cerebrospinalis, Berl. med. Wchnschr., 1912, p. 897.

4. Alzheimer: Centralbl. f. Nervenh. u. Psychiat. 1907, p. 449.

Sitting Posture.—The patient assumes a sitting position with his legs flexed and relaxed; the trunk is bent forward and both arms are allowed to hang loosely. In such a way relaxation of the vertebral column is obtained. In the recumbent position the patient is placed on the left side with the knees bent and the thighs flexed on the abdomen. The body is pushed forward and the chin flexed on the chest. A horizontal line is drawn across the patient's back at the level of the highest margin at the iliac crests. The line passes the vertebral column at the fourth lumbar spine and it is advisable to introduce the needle between the fourth and fifth vertebrae. Not more than 5 or 10 c.c. of fluid should be removed at one sitting. It is needless to say that all the necessary precautions should be taken for this operation.

It is extremely important that immediately after the puncture, the patient should be placed in bed for twenty-four hours in order to avoid untoward effects. Chronic alcoholics and neurasthenics do not bear puncture very well The after-effects in such cases are headache, nausea, vomiting, and pain with some rigidity in the neck. The second puncture should not be attempted under ten days, because the first operation produces a local irritation that causes an artificial lymphocytosis in the cerebrospinal fluid.

The most striking pathologic phenomenon in cerebrospinal fluid is a lymphocytic reaction which is invariably an expression of an inflammatory meningitic process. Indeed, the more intense the process, the greater is the lymphocytosis. An increase of globulin is another important feature which is usually present in cases presenting a lymphocytosis. Fehling's fluid is reduced in all cases except in the epidemic form of meningitis. Cholin is usually demonstrable in pathologic states. It would be well to take up individually the content of the cerebrospinal fluid in various forms of nervous and mental diseases, and the secondary stages of syphilis.

1. *General Paralysis.*—In this disease the pressure of the cerebrospinal fluid is increased. It is transparent, and at times it may be slightly turbid. Lymphocytosis, (usually of the small variety) is present in a large variety of cases (98 to 100 per cent.), ranging from 12 to 300 cells per cubic millimeter. Plasma cells and a few polynuclear cells are often observed. Globulin is in excess Fehling's fluid is reduced. The Wassermann reaction is, as a rule, present in both fluid and blood. One not infrequently encounters, however, undoubted cases of paresis in the last stages, in which the Wassermann test is negative in the blood or fluid or both.

2. *Cerebral Syphilis.*—The pathologic findings in the cerebrospinal fluid in cerebral syphilis vary and depend on the type of affection. In the acute exudative meningitic form the lymphocytosis is marked; in one of my cases it was as high as 618 lymphocytes per centimeter; and again, in other instances, it was as low as 56 cells per centimeter. It bears a definite relation to the intensity of the meningeal process. In gummatous conditions, with some meningeal involvement, the cell-count may average from 40 to 100 per centimeters. In the endarteric form with relatively little meningitis, the lymphocytic reaction may be as low as 3 or 5 cells per cubic millimeter The globulin is usually in excess, especially in the gummatous and meningitic forms. The Wassermann test in the blood is positive and the fluid may give negative results. According to Plaut,[5] in cerebral syphilis the Wassermann test in the blood is positive, but negative in the fluid; however, such is not my experience. In some of my cases the Wassermann test was positive both in the blood and fluid. In two cases, the serum and cerebrospinal fluid revealed no complement deviation and it was only after intravenous injection of neosalvarsan and potassium iodid and mercury that a positive Wassermann reaction in the blood and fluid was demonstrable. Fehling's fluid is reduced in cerebral syphilis, even in acute exudative meningitis.

3. *Tuberculous Meningitis.*—In this condition the lymphocytosis is very high—about 500 cells per centimeter. In one of my cases it was as high as 1,100 per cubic millimeter. The polynuclear element is, relatively, fairly well marked. Fehling's solution is reduced. The Wassermann reaction is usually negative, although in one of my cases the fluid showed a complement deviation. In addition to these findings tubercle bacilli can be demonstrated in the fluid. The pressure is high and the fluid is often turbid.

In other forms of meningitis the cellular element shows a similar increase, as in tuberculous meningitis. On the strength of the cytologic picture alone, however, a differential diagnosis between tuberculous meningitis and other forms of meningitis, including syphilis, cannot be made. The other laboratory tests and the clinical phenomena are important to take into consideration.

4. *Fracture of the Skull.*—Aside from bloody fluid and increased pressure the content of the cerebrospinal fluid shows nothing significant.

5. *Cerebral Hemorrhage.*—In cases in which the hemorrhage is at the base or has broken through the ventricles, the fluid is bloody and the pressure is increased, but the other findings are negative.

6. *Arteriosclerotic Insanity and Senile Psychosis.*—The cerebrospinal fluid content presents nothing pathologic in this condition.

7. *Tabes.*—In a large majority of tabetics a lymphocytosis of varying degree is usually present. There are cases, however, which show no increase of cellular elements. According to Plaut, Rehm, and Schottmüller,[1] a lymphocytosis is demonstrated in 85 to 90 per cent. Globulin is increased in many cases. Fehling's solution is reduced. The Wassermann reaction in the fluid is present in only 60 per cent. of the cases (Nonne) and in 70 per cent. the blood is positive (Plaut).[5]

8. *Poliomyelitis.*—The findings in the cerebrospinal fluid in poliomyelitis are pathologic but not pathognomonic. Peabody, Draper, and Dochez[6] sum up the results of their investigations as follows:

> The spinal fluid from cases of acute poliomyelitis, during the first few weeks after the onset of the symptoms, shows, in the great majority of instances, deviations from the normal.
>
> Fluids taken during the early days of the disease, and especially before the onset of paralysis, tend to show an increased cell-count with a low or normal globulin content. At this early stage the polymorphonuclear cells may amount to 90 per cent. of the total. Most fluids, however, show almost exclusively lymphocytes and large mononuclear cells. After the first two weeks the cell-count usually drops to normal, or nearly normal, and there is frequently an increase in the globulin content. A slight increase in globulin may persist for seven weeks or longer.
>
> Analogous changes may be found in the spinal fluid in abortive cases.
>
> All fluids examined reduced Fehling's solution.
>
> The examination of the cerebrospinal fluid in acute poliomyelitis, while giving no specific diagnostic criterions, so far as

5. Plaut: Die Wassermannsche Serodiagnostik in ihrer Anwendung der Psychiatrie, 1909.

6. Peabody, F. W., Draper, G., and Dochez, N. R., Rockefeller Institute, New York, 1912.

is yet known, is of the utmost value as an aid to diagnosis both in preparalytic and in abortive cases.

9. *Epilepsy.*—No characteristic abnormal constituents in the fluid are in evidence, except that some investigators found an increase of cholin (?) and phosphoric acid.

10. *Tumor Cerebri.*—In tumor of the brain of nonluetic genesis the fluid is free from pathologic findings.

11. *Tumor of the Spinal Cord.*—According to Kaplan and Casamajor,[7] Nonne and others, the cerebrospinal fluid reveals an increase of globulin but without increase of cellular elements.

12. *Compression of the Spinal Column.*—In such a condition globulin content is increased but is not accompanied by a lymphocytosis. Quite often the fluid coagulates soon after its withdrawal. The cause of the excess of globulin is attributed to stasis and occurs only in the fluid which is below the compression. Not infrequently the fluid is found to be yellowish (xanthochromic). This finding is not characteristic of compression, however, but may also occur in tuberculous meningitis.

13, 14 and 15. *Alcoholic, Infective, Exhaustive and Functional Psychoses.*—The cerebrospinal fluid reveals no abnormal features in this condition except that in acute alcoholic intoxication aldehyd may be detected (O. Schumm.) The findings in the cerebrospinal fluid are normal.

16. *Organic Non-Luetic Nervous Diseases.*—In Landry's paralysis, amyotrophic lateral sclerosis, paralysis agitans, etc., the content of the cerebrospinal fluid is free from abnormal constituents.

17. *Syphilis in the Secondary Stages.*—It would be interesting to call attention to the fact that during the secondary stages of syphilis the cerebrospinal fluid may show certain pathologic changes although the nervous system may exhibit no subjective or objective evidences of an organic affection. Recently Dreyfus[8] made careful studies of the Wassermann test and of the cytology and chemistry of the cerebrospinal fluid in secondary syphilis and found that in seventeen out of twenty-two cases, the cerebrospinal fluid revealed either a lymphocytosis or an excess of globulin and in five instances the pressure of cerebrospinal fluid was increased. It is worthy of note that none of his patients showed any symptoms of organic disease, and furthermore they were not treated with antiluetic remedies. According to Ravaut, Zaloziecki and Rehm, lymphocytosis occurs in 50 per cent. of cases in secondary syphilis. Plaut asserts that in one-third of his cases a lymphocytosis was present and in another third the cell-count was on the border line. These important findings in secondary syphilis should receive our careful attention, and, indeed, the cerebrospinal fluid should be repeatedly examined in cases of secondary syphilis. In this manner we are placed in a position to determine the state of the central nervous system and to be guided accordingly in our therapy.

It cannot be too highly emphasized that the importance of the examinations of the cerebrospinal fluid lies in the fact that we, invariably, can either determine or exclude a luetic or metaluetic organic brain disorder or a meningitis of tuberculous or other form. It should be borne in mind that the cytologic reaction with excess of globulin content is of profound significance and is of greater value than the Wassermann test. To quote from one of my former papers:[9]

> In order to make a complete laboratory report of neurologic or psychiatric validity, it is essential to examine the blood and fluid for complement deviations, and in addition to this, cytologic and chemical tests of the cerebrospinal fluid should be made. An examination of the blood alone will throw no light on the psychiatric or neurologic diagnosis. It must also be emphasized that in suspicious cases several examinations of the blood and fluid should be made.

A lumbar puncture under proper precautions and performed by a competent physician is absolutely harmless.

7. Kaplan and Casamajor: The Neuroserologic Findings in Tabes, General Paralysis, Cerebrospinal Fluid, etc., Arch. Int. Med., p. 262.

8. Dreyfus: München. med. Wchnschr., lix, 1912.

9. Karpas, M. J.: The Clinical Interpretations of the Serologic Content of the Blood and Cerebrospinal Fluid, with Some References to the Cytology and Chemistry of the Latter in Mental Diseases, Am. Jour. of Insan., lxix; The Significance of Wassermann Reaction for Psychiatry, Bellevue Hosp. Bull., January, 1911.

EMPIRICISM IN DERMATOLOGIC THERAPEUTICS

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While, for the last decade, we have made wonderful strides in medicine, and while we are expected to treat diseases with scientific exactness, empiricism is as rampant as ever. Let an enterprising pharmaceutical house bring forward a remedy for a certain disease and advertise it in a pseudoscientific way, and the profession will not fail to adopt and use it until another advertised remedy displaces it. It does not matter whether it be a revived old remedy, a new one, or an old one dressed in a new garb; whether it be a chemical or an animal extract, a heterogeneous vaccine, the profession is always ready to welcome the new medicinal recruit and give it a place in its multitudinous armamentarium. We, somehow, do not trust our old medicinal agents. We are, like our Mexican neighbors, always dissatisfied with medicinal leaders and often have our own little revolutions. Wherein lies the fault? It is due, partly, to our blind devotion to our old-time drugs, which should have been relegated to the attic years ago, and, partly, to our fickleness created by overenterprising pharmaceutical houses. It is really astonishing how arrogant and dictatorial some of the representatives of pharmaceutical firms become. As corrupt politicians, they not only influence the individual members of our profession, but also dominate our societies. Essays and discussions on patent chemical or bacteriologic products are forced on societies. Preposterous and magic claims are made by fickle members of our profession, and their claims heralded in legitimate and illegitimate medical and pharmaceutical journals. I need not mention any names.

I am very proud of the fact that the Council on Pharmacy of our American Medical Association is doing splendid work in trying to suppress this pernicious evil. I am very proud of our individual members of the profession who are bold enough by mouth and pen to expose these pseudo ethical preparations.

Our fickleness is due to our lack of knowledge of plain and physiologic chemistry, chemistry of the tissues and skin, in healthy and diseased state; lack of knowledge of internal and external secretions. How many of us know the real status of the tissues or skin in normal and abnormal condition? How many of us know what changes take place in certain drugs when used externally or internally? For instance, how many of us know that

alkali-free chrysarobin ointments or varnishes form on the skin oxichrysarobin, as a result of the normal presence of oleic acid in the skin? The oxidation process which chrysarobin undergoes on the skin has afforded Unna and Golodetz the opportunity to test, with the aid of other reagents, the reaction of the skin.

How many of us know what chemical action takes place when several drugs are incorporated in a fatty base, and what such a preparation does when it comes in contact with the secretions of the skin? I do not believe that any of us stop to consider such questions. When we apply Lassar's paste for the protection and what-not, of the skin, we are no more scientific than the old women who advocate the bread-and-milk poultice. One does as well as the other.

Do we positively know what becomes of a certain drug and how it acts when it is taken internally? Do we positively know what organs absorb the drug and how much is eliminated? Let us take, for instance, cacodylate of sodium. Gautier, who suggested this drug in preference to arsenic, demonstrated that sodium cacodylate is easily tolerated, though a small part of arsenic is actually split off from this organic compound and appears in the urine as arsenious acid. He also demonstrated that the liver, intestines and stomach had the power of reducing cacodylate of soda. Consequently, when cacodylates are taken internally, the odor (garlicky) of cacodyl oxid occurs, while this phenomenon is rarely exhibited when the drug is used subcutaneously. Sodium cacodylate distinctly diminishes the oxidation power of the body.

Superficial physiologic study of drugs is only speculative and, hence, unreliable. The exact scientific study of any remedy requires its thorough test on animals in healthy and diseased states before it is used on man.

Are our older drugs perfect? By no means. Chemistry and physiologic chemistry were not so thoroughly understood formerly as they are now. Even now their conclusions are not infallible. The study of drugs was too superficial, too speculative. Many drugs were called specific that never deserved the name of specific. When it comes to drugs we often grow too enthusiastic. Psychologic influence is often mistaken for the therapeutic value of a drug. Hence, the success of a certain drug in the hands of one physician and its failure in the hands of another.

In dermatology, the most complicated branch of medicine, empiricism is just as rampant as in other branches. This is due to external manifestations which we are expected to remove at once. No psychologic influence can be used in our branch as in other branches. No imaginary diseases come our way. We have to face visible facts, often with invisible causes.

Although acne, eczema, psoriasis, lichen planus, erythemas, purpura, lupus erythematosus, pellagra, rosacea, alopecia areata, hypertrichosis, hyperidrosis, seborrhea and pruritus are the diseases we come in contact with most frequently, and their clinical pictures and histologic changes are well known to us, their true character and etiology is still obscure.

Notwithstanding the brilliant work of Gilchrist, Adamson, Engman and others, the true etiology of acne is unknown. Even in regard to lupus vulgaris, there is still a doubt in the mind of many investigators as to whether it is a local skin disease or a symptom of tuberculous diathesis.

No true etiology will ever be established until we have thoroughly investigated the reaction of the skin against outward and inner influences in the normal skin and in the various skin diseases. There are so many processes in metabolism and in chemism of the skin, causing skin lesions, that a dermatologist must be a good internist and well versed in physiologic chemistry. We have paid very little attention to internal and external secretion of large and small glands and, no doubt, there exists a relationship between them and the skin.

Taking into consideration that in the majority of frequent skin diseases, the etiology is unknown, how, then, can we expect rational and scientific therapy? Our present dermatologic therapy is empirical. No wonder, then, that dermatologists have always refrained from referring to therapeutics in presenting and discussing papers. They have used drugs from choice and habit.

Looking over the standard works on skin diseases, one will be appalled by the numerous remedies recommended for skin diseases of unknown etiology. In the twelve standard works on dermatology (two American, two English, three German, two French, one Russian and one Italian) I find recommended: 34 remedies for acne, 49 for eczema, 21 for urticaria, 22 for pruritus, 22 for lupus erythematosus, 24 for erythemas, 26 for alopecias, 32 for psoriasis, 30 for lichen planus, 12 for pellagra and 26 for purpuras.

Arsenic stands at the top. Sulphur comes next. Both of these drugs are used externally, internally and eternally. Both the laity and the profession seem to be very fond of these drugs. These two drugs, like the poor, have always been with us. Arsenic has been a dangerous therapeutic weapon in the hands of the laity as well as the profession. It has been used *ad nauseam*. Calcium sulphid and red sulphid of arsenic, both very unreliable and unstable preparations of sulphur, seem to be favorite remedies for acne. Speaking of calcium sulphid, the late Dr. Hyde was right when he said that "it should be set down side by side with the ludicrous specimens of therapeutic empiricism." A good many other drugs ought to be placed in the same category.

In my article,[1] on "The So-called Important Drugs Used in Dermatology," the reader can obtain some ideas of the little value of even the most important drugs. I may be called a therapeutic nihilist. It is not nihilism that compels me to take such a view; it is realism, and no real progress can be made without realism.

The *Journal of Cutaneous Diseases* should be commended for creating a department for therapeutics. In this department we should fight our battle fair and square. "Only facts" should be our motto.

There is no question that a great many skin diseases, of unknown etiology, are of toxic nature. The resistless progress toward accuracy of diagnosis of the autointoxications, gives us assurance that chemical certainty is shortly to place in our hands the power to control that vast chaos of sufferings caused by toxins. We need a few more men like Pasteur, Koch, Ehrlich and Metchnikoff. With the influence of such men, empiricism in medicine is bound to disappear and scientific facts will become our guides.

1. Ravitch, M. L.: The So-Called Important Drugs Used in Dermatology, Jour. Cutan. Dis., June, 1913.

The Red Radish in Science.—An alcoholic solution of the skin of a red radish serves as an excellent indicator or test for acids and bases. In the presence of acids the colorless solution turns pink while with bases—alkaline solutions—it turns yellow. It is well known that many plant extracts such as litmus and animal products like the cochineal bug possess this property of developing marked colors with acids and bases, but no other indicator is so simply made.—*Scientific American.*

DIURETIC DRUGS IN ACUTE EXPERIMENTAL NEPHRITIS *

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The term "diuretic drug" is used in this paper to indicate drugs which are used frequently by physicians for the purpose of causing diuresis. How they act, whether or not they are actually diuretics, and questions of this nature lie beyond the scope of this paper, and are left for discussion by pharmacologists.

Since the abstract of this paper was prepared a portion of the work has been published,[1] and this I shall review briefly.

In that paper we described experiments with theobromin sodium salicylate in rabbits having severe nephritis produced by uranium nitrate. In half of the animals theobromin sodium salicylate was given by stomach-tube, and in half it was given intravenously. In all eighty-two rabbits were used, half of which, not receiving theobromin sodium salicylate, served as controls. In order to have the animals which received theobromin sodium salicylate and the controls under the same conditions of experiment in each series, every alternate animal was a control. The nephritis produced was fatal in all except twelve rabbits, nine of which had received theobromin sodium salicylate. Of those receiving theobromin sodium salicylate by stomach-tube and dying, the average duration of life was 6 days, of controls 6.94 days. Of those receiving theobromin sodium salicylate intravenously, the average duration of life was 4.56 days, of controls 6.23 days. Thus under the conditions of our experiments, theobromin sodium salicylate materially shortened the life of animals with severe acute fatal nephritis.

In another series of experiments in the Laboratory of Theory and Practice of Physic at Harvard shortly to be published by Walker and Dawson in the *Archives of Internal Medicine*, a similar study was made of caffein, theocin, potassium acetate, spartein sulphate and water, in severe fatal uranium nephritis in rabbits under similar conditions as in the theobromin sodium salicylate experiments. A smaller series of animals was used in these experiments, and in them all drugs were given intravenously in doses corresponding to those used therapeutically in man. The average duration of life was as follows: caffein 5 days; theocin 4 4/7 days; potassium acetate 4 4/7 days; spartein sulphate 6 days, with one surviving animal, while control rabbits lived 8 1/5 days. These results are essentially similar to those obtained with theobromin sodium salicylate. With water given intravenously in the same amount as used for a solvent of the preceding drugs in one series of four rabbits, the duration of life was 5 1/6 days, while of controls two died in the same time, and two survived. In another series of four rabbits the duration of life was 3 5/12 days for rabbits receiving water, and of controls 3 5/6 days. It will be seen that in these experiments water produced but little change in the average duration of life. Still, on the whole, it tended to shorten the life of the rabbits. In all of the experiments with diuretic drugs described in the foregoing, the rabbits were on a diet of carrots, oats and water, to all of which they had free access. The amount they ate and drank varied with their appetite, and always appeared to decrease after nephritis developed as the result of doses of uranium nitrate.

In yet another series of experiments I attempted to find out what effect theobromin sodium salicylate would have on the kidney as measured by some of the tests for renal function. In one set of six animals a severe nephritis was produced in rabbits with uranium nitrate. The rabbits were kept in metabolism cages, and water and food intake and urine output were measured. The excretion of phenolsulphonephthalein was measured before and after giving the uranium. There was a prompt decrease in the ability of the kidney to excrete this coloring matter after uranium had been given. This decrease in phenolsulphonephthalein excretion in rabbits having a very severe nephritis appeared to be uninfluenced by theobromin sodium salicylate which was given to three of the six animals.

In another set of five animals, a milder though still quite severe nephritis was produced by uranium. Here the phthalein output was less markedly decreased in the animals receiving theobromin sodium salicylate than in those not receiving the drug. In neither set was there any striking or constant influence on total urine output, thus agreeing with the findings in normal rabbits. In these rabbits in which renal function was measured by the phenolsulphonephthalein excretion, theobromin sodium salicylate was given subcutaneously.

With the cooperation of Professor Folin I have similarly studied the influence of theobromin sodium salicylate on nitrogen retention of the blood, which results were reported at the Association of American Physicians in May, 1913. Here only the very severe nephritis was studied, and theobromin sodium salicylate seemed to have little if any influence on the nitrogen retention.

Obviously too few animals have been studied in relation to the effect of theobromin sodium salicylate on renal function in rabbits with experimental nephritis to justify any generalizations or any deductions directly applicable to our therapeutic problems in man. The results are suggestive, however, indicating the need of careful reexamination of the effects of various diuretics in nephritis, and are reported here in this incomplete form in the hope that they may stimulate a renewed study of the action of diuretics in nephritis. Methods of testing renal function give us better means of examining the effects of drugs on the kidney, both in animals with experimental lesions and in man with natural disease. Their application in each should yield us valuable information to help in the difficult problem of how best to treat nephritis.

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ABSTRACT OF DISCUSSION

DR. A. D. HIRSCHFELDER, Baltimore: I should like to ask Dr. Christian whether or not he has had any experience with the glomerulonephritis and what his advice would be, if any can be given, regarding glomerulonephritis as one encounters it in a chronic infective endocarditis, in which Baehr and others have found septic emboli of *Streptococcus viridans* lodged in the loops of the capillaries within the glomerulus. Under these circumstances, encountering severe retention, with edema and mild failure of the circulation, should one, in the light of experimental nephritis, at least, resort to any of the diuretic drugs, or particularly the saline diuretics, or would it be a more satisfactory procedure, in the light of present knowledge, to withhold them?

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Laboratory of the Department of the Theory and Practice of Physic, Harvard Medical School.

1. Christian, Henry A., and O'Hare, James P.: A Study of the Therapeutic Value of a Diuretic (Theobromin Sodium Salicylate or Diuretin) in Acute Experimental Nephritis (Study XVI), Arch. Int. Med., May, 1913, p. 517.

DR. HENRY A. CHRISTIAN, Boston: Dr. Hirschfelder's question is easily answered because in all of these animals suffering from uranium nephritis there was a very marked glomerular lesion; that is a fact apparently overlooked by Schlayer and others in their work. A severe experimental nephritis produced by uranium nitrate practically always shows very marked glomerular lesions. My associates and I have described five or six distinct types of glomerular lesion which occur in this form of nephritis, so that it can be said that practically every one of these animals with severe nephritis had lesions of both glomeruli and tubules. Under these conditions I should not be quick to recommend active diuretic procedures in the human being with severe acute lesions, probably in the glomerulus. We probably should not know whether these lesions were in the glomerulus or not and I should be willing to try some diuretic procedures if they seemed otherwise indicated, but so far as can be inferred from this work, recognizing our ignorance as to whether there is a glomerular lesion or not in the given human case, I am still rather in doubt as to how to treat it.

THERAPEUTIC POSSIBILITIES OF TRANSFUSION *

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On the very suggestion of the word "transfusion" one's imagination immediately conjures up an individual clinging desperately to a life that has been all but snatched from him as a result of accidental hemorrhage, postoperative hemorrhage or one of those tragic depletions that not infrequently occur in the course of certain well-recognized conditions, such as extrauterine pregnancy, gastric ulcer, etc. And there is ample justification for this; transfusion is at present an emergency operation—an operation to which one resorts with relative infrequency and only when the patient is in the direst straits. The brilliant results that have been achieved despite the unpromising conditions under which we perform it are proof, if proof be needed, of its helpfulness.

I was recently reviewing my records and was forcibly impressed with the number of transfusions which I had performed, not as emergency operations, but for the relief of various other conditions. I analyzed the findings and from them formulated for myself this question which I now take as the subject of my paper: "Is transfusion purely and simply an emergency operation? May not its chief field of usefulness be rather as a therapeutic agent, and have we not almost entirely overlooked this possibility?"

True, there will always be emergency cases. There will always be a certain number of cases in which fresh blood, immediately and bountifully supplied, will be the only means of saving life. But, are there not a great many so-called medical conditions for whose relief blood, fresh blood, is equally as necessary to life and well-being, though not quite so urgent as in the emergencies? Let me describe the therapeutic potentialities of this procedure.

Let us consider first cases of gastric or duodenal ulcer. Is there a physician who has had a case of this kind under his care in which bleeding has not been a complication? The method of procedure in the presence of the hemorrhage is rest, starvation, ice-bag, morphin, etc., and when the hemorrhage persists, in spite of all treatment, or is so profuse right from its inception as to be alarming, life-endangering, what then is the method of procedure? Starvation, rest, ice-bag, morphin, etc., with a little horse-serum or human serum introduced in order to change the coagulation time of the blood and thus check the hemorrhage. If the bleeding stops, as it does in the vast majority of cases when the blood-pressure becomes so low that the heart is unable to overcome the resistance offered by the vessels, what then is the method of procedure? Is it not that the physician congratulates himself and the family, everybody heaves a sigh of relief and then all sit back, literally with folded hands, patiently to await the gradual, tedious convalescence of the exsanguinated victim, who under our so-called modern conditions must to all intents and purposes work out his own salvation? Furthermore, is it not also a fact that the family is almost invariably told that the enforced rest and starvation diet will be a great boon to the afflicted one in that it will give the ulcer a chance to heal? Thus do we delude others and ourselves. Do these ulcers heal? Do these patients make complete, permanent recoveries? Perhaps a few of them do, but an honest consultation of the records will show that the recoveries are in the sad minority—and the tale told by the record-books can be supplemented from the experiences of the surgeon who sees so many of them after they have been cured!

I earnestly believe that in our treatment of such cases we have utterly missed the point. When a person becomes run-down, to use a colloquialism, all our energies are bent toward building him up. No matter what is his ailment, medical or surgical, if the patient is below par, if he is anemic and his hemoglobin is low, attention must be devoted toward raising these most important factors to normal before a complete and lasting cure can be expected. And, correspondingly, with individuals exsanguinated as a result of a gastric or duodenal ulcer, it is unreasonable to expect the ulcer to heal when the body has all it can do to regenerate new blood. Tissues never heal under such conditions. They require nutrition in the form of blood—fresh blood, and quantities of it—in order that they may recover, and I am of the opinion that a proper realization and application of this principle by means of transfusion, in selected cases of course, will result in a much higher percentage of permanent cures than has ever before been obtained. Use transfusion in these cases, not in the active stage of the bleeding, unless it is alarming, but in the quiescent stage a few days after the bleeding has ceased. It is unwise to give too much blood during active bleeding; in the presence of hemorrhage it is hazardous to raise the blood-pressure very much; one should simply give sufficient blood to decrease the coagulation time and tide the patient over this dangerous period. *In the quiescent stage the vessels can be and should be filled to the brim.*

Freshly transfused blood is of service not alone in cases of ulcer of the intestinal canal. Certain forms of obscure anemia, formerly considered intractable, seem, in the light of further experience, to respond with gratifying improvement to transfusion. A little over a year ago I transfused a boy about 7 years old who had suffered for several years from so-called splenic anemia. He had had repeated hemorrhages from the stomach and he vomited practically all the blood I gave him about eighteen hours after the transfusion. His hemoglobin then was so low that it failed to register and he was in a desperate condition, so desperate that

* Read in the Section on Surgery of the American Medical Association, at the Sixty Fourth Annual Session, held at Minneapolis, June, 1913.

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it was decided as a last resort to transfuse him again and remove his enlarged spleen at the same time. This was done twenty-four hours after the first transfusion, the splenectomy being rapidly performed by Dr. John M. T. Finney. After a very stormy convalescence the boy apparently made a complete recovery. He died five months later from another gastric hemorrhage, probably the result of an old esophageal varix. (After leaving the hospital his mother indulged his fancies and appetite too freely at Atlantic City.) It will be remembered that he had been ill three or four years, during which time these varices had developed.

Only recently I have transfused in a case of anemia of long standing somewhat similar to the above, and the patient is doing so well that her spleen, which it had been planned to remove under a second transfusion after the first one should have improved her condition, has not been disturbed.

Encouraging results are being reported in pernicious anemia, though in this condition repeated transfusion seems necessary. After each operation blood is gradually lost, but repeated doses are apparently beneficial. Not long ago a man was admitted to St. Agnes Hospital, Dr. J. C. Bloodgood's clinic, in desperate straits from pernicious anemia. All medical means had been exhausted, and as a last resort he was transfused. He improved, but shortly afterward lost ground and had to be transfused again. He was given, in all, four doses of blood from three different donors and he lived nearly two years, once getting up to a count of 2½ million red blood-corpuscles and being able to get about a bit. He finally developed a high fever which was fatal. I know of no complete and permanent cure, but it must be remembered that transfusion is never done in these cases until all possible medical means have been exhausted, by which time the patient is almost *in extremis*.[1] Perhaps an earlier use might give better results. At any rate, I believe that the evidence against transfusion in these conditions of obscure anemia is based on too few cases and that until the number is great enough to warrant accurate deductions, transfusion, and repeated transfusion, should be practiced in every case in which it would seem to offer the slightest chance of success. By this I mean that the patient should be brought up for operation before he is moribund, before he is in such shape that nothing short of a miracle can save him.[2]

Certain toxemias, obscure in origin, only too often deadly as regards their outcome, may be helped by new blood. A case in point is one that I attended with Drs. Slemons and Burnam—a case of toxemia of pregnancy. The patient was a young woman who had been operated on some months previously for stone in both kidneys. About six weeks before we saw her she had begun to vomit constantly, her urine decreased in amount and she became quite ill, the condition being diagnosed as nephritis. Her course was progressively downward, and finally Dr. Burnam went over to Washington, her home, diagnosed a three months' pregnancy and immediately brought her over to Baltimore, where Dr. Slemons emptied the uterus. By this time the patient was in very bad condition. She had lost about 60 pounds in weight, on account of her vomiting had taken no nourishment for days, and had secreted but 15 c.c. of urine during the preceding twenty-four hours. She failed to respond after her uterus was emptied and about twelve hours later, in an almost hopeless attempt to save her life, she was transfused from another pregnant woman, the theory being that certain antibodies might be present in the blood of one normally pregnant woman which might overcome the toxins circulating in the blood of another woman suffering from the toxemia of pregnancy. We cannot affirm this theory as true, but the fact remains that our patient rallied. Six hours after the transfusion she secreted 75 c.c. of urine and her pulse had dropped from 160 and up to around 120. It was, however, alarmingly irregular. Her mental condition was remarkably clear. She held on in this condition and in the next twenty-four hours secreted 1,100 c.c. of almost perfectly normal urine and seemed on the road to recovery when suddenly about thirty-six hours after the transfusion she died—probably from a myocarditis resulting from the prolonged illness and the overwhelming poison that was apparently eradicated too late to be of service. The ammonia content of this patient's urine before transfusion was 22 per cent. The 1,100 c.c. of urine mentioned above contained 7.8 per cent., the normal being between 5 and 6 per cent. Her urine, therefore, was practically normal in all respects; there was no albumin. Had she not come for transfusion so late, I am sure we could have scored a brilliant victory.

A case very similar to this, but more fortunate in its outcome, has been reported by Dr. H. M. Keator[3] of New York. His patient, also suffering from toxemia of pregnancy, developed in addition a severe purpura. All treatment was unavailing. The uterus was emptied, but the patient failed to rally. She made a prompt and complete recovery after transfusion from her husband.

I think there can be little question but that transfusion should have a further trial in this distressing and fatal condition, and I would suggest that it should also be tried in those cases of eclampsia that fail to respond to treatment.

Fresh blood has been used with considerable success in pellagra; Cole of Alabama having reported twenty or more cases in which he had done transfusion with 60 to 80 per cent. of cures—a vast improvement over statistics reported by other methods of treatment. I have transfused two patients myself. The first was a woman (St. Agnes Hospital) in the terminal stage of the disease, the mental features being most pronounced. The course of the disease was uninfluenced and she died a few days after the operation. The second, also a woman, was in a stage somewhat earlier than the first, although mental symptoms were becoming apparent. All medical treatment had failed and the patient was going steadily down hill. After transfusion from her husband she made a gradual but apparently complete recovery. She died five months later of acute alcoholism,[4] and at necropsy absolutely no signs of pellagra were found. It is my conviction that transfusion in this condition simply raises the resistance of the patient

1. Only ten days ago I transfused a young man who, suffering from a most malignant type of pernicious anemia had a hemoglobin of only 15 per cent. and a red count of a little over 1,000,000 cells. He was benefited for three or four days but succumbed within ten days, as had been prognosticated. The only reason I consented to transfuse this case was that I knew it could do him no harm and because he and his family wished to take the infinitesimal chance of aid that might result. But these cases are *too late*. The patient must come up for transfusion while there is still some fight left in him.

2. So far as I am aware no case of pernicious anemia has been transfused when the hemoglobin was 50 per cent. or over. It might well be that these cases will retain and utilize to advantage, new, whole blood early in the course of the disease, whereas such is not the case later on.

3. Keator: Am. Jour. Obst., 1912, lxv, 1005.

4. This patient had a decided alcoholic history before she developed pellagra, being especially addicted to gin. After her recovery she began to drink harder than ever with the inevitable result above noted.

and enables him successfully to throw off an infection or toxin that would otherwise overwhelm him. It hardly seems likely that there is anything specific.

The success of the foregoing case of pellagra emboldened me to try transfusion in two other cases of skin disease, namely, pemphigus foliaceus and psoriasis. Both were chronic intractable cases and both patients were quite anxious to have the attempt made. Temporary relief followed in each instance; but there was no permanent benefit. Further work in these conditions, especially pemphigus, is in progress and the results will be noted later on. The field is as yet untouched, and it seems not unlikely that whole blood may be of considerable service in certain of these maladies.

Besides the cases in which the patient is suffering from a definite disease, it seems to me that there are many conditions in which and many individuals to whom a supply of good, red blood would seem to be the one thing needed; the boost that would start them off on the up-grade toward health. Cases of chronic infection and consequent debility, cases of lowered resistance resulting from no one definite cause and even certain selected cases of tuberculosis. Think how many individuals there are who are constantly complaining—anemic, sallow, hollow-chested, weak people who never have an appetite and are incapable of work, or who work only under great stress. Iron, arsenic, fresh air, good food—these and a host of other means help a certain number of such patients, but a not inconsiderable number remain to struggle along and eke out a weary, worthless existence. Does it not seem possible that the needed stimulus might come in the form of a bountiful supply of healthy, fresh blood? May it not well be that a number of the undernourished, anemic children or prematurely born babies might be amenable to the same form of treatment?

I might discuss a number of other conditions in which transfusion might be employed—such as hemorrhage in the new-born, bleeding in typhoid, shock, illuminating-gas poisoning, bad surgical risks, etc.—but their mention would serve only to further illuminate a topic which I intended to present not so much for its instructive as for its suggestive value. In conclusion let me emphasize the fact that transfusion, in this day, is by no means the formidable operation it is commonly considered. Judicially used it is practically without risk either to donor or recipient. The dangers of hemolysis and anaphylaxis are practically nil, and a careful examination of the donor—especially is it advisable to have a Wassermann—will rule out the chance of transmitting disease. I have never known a donor to receive an infection from a recipient. This is, of course, theoretically possible, but is not likely to occur if proper precautions are used to prevent it. In a recent transfusion for hemorrhage in typhoid there was no infection.

Under these circumstances let me ask practitioners to consider the suggestions I have made. Perhaps they will conclude with me that an important therapeutic agent has been almost totally, but not irrevocably overlooked.

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ABSTRACT OF DISCUSSION

DR. TORALD SOLLMANN, Cleveland: I wish to confine myself to the subject of intravenous infusion, in conditions of low blood-pressure. It is important to realize that when you relieve organic imperfections by introducing some fluid you do not automatically or necessarily relieve the physiologic imperfections that may be present. The former can be of only temporary benefit, unless at the same time directly or indirectly you meet the physiologic imperfection, and that the simple introduction of fluid does not always do automatically. If this disturbance has not gone too far, you may still have restoration by preventing the mechanical condition, but in experimental work that only remains for a relatively short time, and that is in agreement with clinical experience.

As soon as the physiologic conditions of the heart and blood-vessels have suffered for a long time, which is relatively short, depending on how much they have suffered, five months or longer, then to restore the mechanical conditions will not bring permanent relief. The relief of mechanical conditions will give really good results only under favorable conditions and not otherwise. The mechanical relief, however, is the subject we are considering directly. That means the restoration of fluid in active circulation. This is done very easily by introducing more fluid into the vessels. As has been pointed out, the normal saline solutions fill the vessels, not at once, but quite rapidly. I can imagine that the time during which even normal saline remains in the vessels is quite long enough to reestablish favorable conditions and to tide the patient or animal over the dangerous period, when it can resume its own functions. The fact that saline solutions leave the vessels rapidly is by no means an unqualified objection to the use of saline solutions. It may be a very favorable feature.

You must remember that when you introduce a fluid which does not leave the vessels immediately, if you succeed in restoring the normal, you establish an abnormal stage by introducing something which the normal cannot at once remove. That may or may not be objectionable. The condition is not a simple one. There is more than one thing to accomplish. Simply getting a solution into the blood-vessels does not solve all the problem. Clinical experience may show that it is desirable to have a fluid which will remain in the blood-vessels only a short time, and then leave the animal to its own devices. We have various means of measuring how quickly a solution leaves the blood-vessels, and where it leaves. As a matter of fact, saline solution does disappear quickly, but not into the urine only; in fact, only a very small part. The major part disappears into the body itself, into cells, lymph-channels and so forth. I should say, therefore, that taking the urine as a guide for the disappearance of fluid from the blood-vessels is hardly safe. There are better methods for showing that. They also show that colloidal salts are retained for a long time. It is not necessary to discuss here why they are so retained, but that brings with it an advantage in certain cases, and some dangers in other cases. Colloids by the very fact that they are not eliminated will persist in the body. Are they absolutely harmless there? That is the question I wish to put to you. It is well-known that foreign colloids in the circulation are many of them disturbing substances to the circulation. We also know that the animal's own plasm is not disturbing. Therefore, it is important that a foreign colloid may be found which also is not disturbing. Whether that has been found in gelatin or not is a question which must be investigated. I would proceed rather cautiously.

DR. HARRY SLOAN, Cleveland: I want to commend Dr. Bernheim's advocating transfusion in cases in which there has been a sudden depletion of blood from the blood-vessels in that it gradually reduces convalescence and returns the patient to his normal condition in a shorter time. The principle at fault is depriving the central nervous system of its normal supply of nourishment. You can see the result of this procedure markedly illustrated in cases of carbon monoxid poisoning, in which there is formed a combination between the hemoglobin and the red cells, and the carbon monoxid, which throws out a greater portion of active hemoglobin-carrying substances. Such patients, if left alone, make a very tardy convalescence, three months being usually required before they can return to normal. If the patient is bled and trans-

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fused with normal blood, he will make a prompt recovery, and be around again in a day or two. Clinicians tell us that pernicious anemia is usually a fatal disease, no matter what we do for it. There are the ups and downs, the periods of betterment alternating with periods of depression. We have not yet determined the hemolytic factor that causes the destruction of the red cells in pernicious anemia. It has been our experience in filling these people with new blood that they lose it in eight days, and return to the condition they were in before the transfusion. It was simply a temporary measure tiding them over for a few days. The method should not be followed out generally, because its use may result in useless operation without effecting the ultimate cure of the patient.

As to transfusion in tuberculous patients: The serum from tuberculous patients hemolyzes the normal red cells. In transfusing a tuberculous patient we run a great danger from active hemolysis occurring at the time of transfusion, with the resulting death of the patient, so that in doing transfusion in the case of a patient with active tuberculosis we must be careful that no hemolysis takes place. Clinically, this is shown by ascites in pericardium, pain and cyanosis, without dilatation of the heart. In a case of tuberculosis in which Dr. Crile transfused with normal blood, the patient seemed to do better than did those who did not have the transfusion, but you must shut off the transfusion when the patient begins to complain of pericardial distress with rapidity of the pulse rate.

DR. B. M. BERNHEIM, Baltimore, Md.: In regard to transfusing in pernicious anemia, we talked with Dr. Sloan yesterday and he said that he did not think it was advisable to do it. I asked him whether he had ever transfused a case early in the course of the disease, and he said no. If you will look up the literature, you will find that no one has transfused a case early in the course of the disease. The patients transfused have been nearly moribund. They were treated by physicians and as a last resort were brought in for transfusion, and it was done as an almost hopeless effort to save the patient. I do not believe that it helps matters much to reason about this matter, and to say that we do not know the cause of the blood destruction. That is true. It seems to me that we might take the case immediately after the diagnosis is made, while the patient has some fight left in him, and while his hemoglobin is still up to fifty or sixty per cent. Instead of giving him arsenic and the usual treatment, which is always fatal, why not try a few cases which might give a different result? As regards instruments for transfusion, Dr. Kimpton's instrument seems to be a good one, but no man can use that tube unless he has worked in the laboratory and has paraffined a tube not only once, but many times. No one else can do it. No one can do transfusions in general unless he has tried beforehand. If a man has worked up his technic on animals and developed it, he can do a successful transfusion by any method. The two things are parallel.

DR. V. C. VAUGHAN, JR., Detroit, Mich.: Some ten months ago I had a case that needed immediate transfusion. The patient was difficult to operate on—a new-born babe. We proved that we could withdraw blood from the donor and by the proper use of saline solution mixed with blood inject it from a hypodermic syringe into the vein of the recipient before it clotted. Dr. Freund of Detroit devised the apparatus. We have two needles, two rubber tubes, going to two-way stop-cock. To this stop-cock is attached a glass tube, with a container for normal saline. One needle is thrust into the vein of the donor, the other into the vein of the recipient. We fill the syringe with 1 c.c. of saline solution. Then the stop-cock from the vein of the donor is opened, and we fill the syringe with blood. Then this cock is shut off and the other is opened, and we force blood into the vein of the recipient. That requires no operation, you do not have to cut the skin. We have transfused 150 c.c. without detaching the needles. Anyone can use the method. The blood does not clot.

THE BROMID QUESTION EXPERIMENTALLY CONSIDERED

I. THE RESPONSES OF THE HEART TO BROMID PERFUSION *

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Potassium bromid was first prepared by Ballard in 1828. The bromid salts were soon found to be depressant to nerve reactions, for which purpose they have been in use in therapeutics for many decades. In 1868 Rabuteau[1] demonstrated bromid retention in the animal organism after continued bromid feeding. This was of peculiar interest because of the well-known fact that other members of the halogen group, namely, the iodids and chlorids, are rapidly eliminated.

The literature of the bromids is voluminous, but little of it directly concerns the pharmacologic reactions in the body. In 1877 Krosz[2] gave a thorough review of the older literature (to 1875). Busquet and Pachon[3] in 1909, studied the relative toxicity of the bromids as compared with other potassium salts in relation to the activities of the rabbit's heart. Aside from these papers the most valuable contributions to the literature are those that have been determined secondarily in other physiologic studies, including the field of comparative literature on the salt action.

In our laboratories we have undertaken the pharmacologic reexamination of the bromids. It seemed to us advisable to first lay the foundations of our work in a careful examination of the reactions of the organs other than the nervous system to the bromids. In the present paper, therefore, we wish only to report a phase of the work; namely, the reactions of the heart and cardiac apparatus to bromid nutrient mediums.

THE BROMIDS ON THE HEART

The experiments here reported were performed on the hearts of frogs, and on the isolated heart of the warm-blooded animals. As a result of the last four decades of physiologic experimentation it is now well known that not only the heart of the cold-blooded animal but also that of the mammal as well responds very normally in both rhythm and amplitude of contractions through many consecutive hours when fed on a physiologically balanced oxygenated saline solution. Especially through the work of Howell and his pupils we have assumed that the cations or bases are the all-important factors in these inorganic salt solutions, and have given relatively little attention to the anions. Of course, it is taken for granted that isotonicity is a very necessary, in fact absolutely essential, factor under all circumstances. Loeb in numerous papers has emphasized the physical constants, especially that of permeability.

The experiments in this field, for the most part, rest on the assumption that the chlorid anion is relatively indifferent toward the living tissue of the organs—of

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Rabuteau: Recherches sur l'émanation des bromures, Gaz. hebd. de méd., 1868, 37.

2. Krosz, I. G.: Ueber die physiologische Wirkung des Bromkalium, Arch. f. exper. Path. u. Pharmakol., 1877, vi, 1.

3. Busquet, H., and Pachon, V.: Contribution à l'étude de la mesure quantitative des actions d'ions sur les organes vivants et isolés, Compt. de Physiol., 1909, xl, 243.

the heart in particular. It has been assumed that the changes observed in the heart under variations in the saline content of its nutrient fluid are primarily dependent on the variations in the cations. Of these cations the all-important and best-investigated ones are sodium, potassium and calcium.

Starting from this point of view we have carefully examined the variations in reactions of the heart to neutral solutions in which the bromid salts have been substituted for the chlorid salts. In every case our stock solutions have been made up of isotonic concentrations, namely, one-eighth molecular solutions.

RESPONSES OF THE HEART TO BROMID SUBSTITUTIONS FOR THE CORRESPONDING CHLORID CONSTITUENT OF PHYSIOLOGIC SOLUTIONS

Physiologic solutions are based on maintaining the physical and chemical balance represented by the blood. Such solutions must first of all be isotonic with the blood-plasma, a factor which is all-important in every artificial solution. The most commonly used solutions are of course physiologic saline, and Ringer's solution or its modifications. Ringer's solution represents a balanced saline consisting of sodium, potassium and calcium chlorids in proportions present in the normal blood. We have tested the bromids, first, by making a sodium bromid isotonic with physiologic saline; second, by substitution of the corresponding bromid salts in equimolecular quantities for the chlorids in Ringer's solution. These substitutions have been for individual chlorids and for the various possible groups in the solution. The final test has been in entirely displacing the chlorids with what may be called a bromid Ringer's solution.

SODIUM BROMID SUBSTITUTED FOR SODIUM CHLORID IN PHYSIOLOGIC SALINE

Considering the first line of experiments; namely, the sodium bromid for a physiologic saline, we report that so far as the cold-blooded heart is concerned it is exceedingly difficult to demonstrate any sharp physiologic change in reaction of the heart to this solution. It is well known that sodium chlorid alone will not sustain cardiac contractions and that the heart responds to it (NaCl) alone with a characteristic cycle of changes in rate and amplitude. Bromid saline gives almost the identical cycle of changes.

There is a slight variation in the response, but so slight that it would scarcely deserve mention but for the fact that it is quite constant; namely, a tendency to a slightly greater rate in the initial stage of the bromid perfusion, with a somewhat greater depression in the later stages. In other words, the so-called toxic influence, if one apply that term to physiologic saline, is a trifle greater with bromid perfusion.

THE INFLUENCE OF A BROMID-RINGER'S SOLUTION ON THE HEART

Omitting for the present consideration of partial substitutions in the Ringer's solution, attention may be called to the reactions of the heart to a pure bromid-Ringer's solution. The bromid solution used consisted of sodium, potassium and calcium bromids in equal molecular concentration with the corresponding chlorid in the normal Ringer's as we use it in the laboratory. This would give, stated in percentages, the following solution:

BROMID-RINGER'S

Sodium bromid	1.29	per cent.
Potassium bromid	.048	per cent.
Calcium bromid	.042	per cent.

This is isotonic with the following normal Ringer's solution:

Sodium chlorid	.73	per cent.
Potassium chlorid	.03	per cent.
Calcium chlorid	.026	per cent.

Frog hearts were perfused with the foregoing bromid-Ringer's solution alternating with chlorid-Ringer's, and also with continuous bromid-Ringer's perfusion through many consecutive hours.

It is well known that the frog heart will remain alive and rhythmic for several days when perfused with normal Ringer's solution, provided only that bacterial infection shall be eliminated. In our laboratories the bromid-Ringer's sustained the heart through twenty-eight hours' consecutive perfusion, the organ still giving good strong contractions at the end of that period. In this instance no effort was made to keep the preparation sterile.

The factor that seems to be relatively constant, though at the same time it must be considered as quantitatively slight, is a mildly accelerated rate, especially in the early stages of bromid perfusion. In the late stages there usually follows a relatively greater decrease in rate under the bromids. These differences are slight and possibly should not be strongly emphasized. At the moment of change from one solution to the other, when it can be assumed that there is an admixture of chlorids and bromids passing through the heart, there is usually a rather pronounced acceleration which affects both amplitude and rate. This can be assumed to be the period when there is a dissociation of ion-protein compounds in the tissues with a shift from the chlorid to the bromid compounds, a factor that probably accounts for the relative instability of the protoplasm at this particular period.

PARTIAL SUBSTITUTIONS OF THE BROMIDS IN A RINGER'S SOLUTION

The experiments in which only one or two of the chlorid salts were replaced by bromid salts practically coincide with the observations which have just been presented. If one gives careful attention to exact isotonic equivalents and maintains a physiologic balance of the cations in solution, then it is practically an indifferent point as to whether the anions shall be chlorid or bromid in so far as the physiology of the cold-blooded heart is concerned.

Experiment to Show the Influence of a Bromid-Ringer Solution Substituted for Chlorid Ringer on the Isolated Heart of a Young Cat.—The heart was kept beating by coronary perfusion with Ringer's solution three parts, and cat's blood one part. At a point the solution was displaced by isotonic bromid solution three parts, and cat's blood one part. The normal rate just before the change was 150 per minute, the amplitude 17 mm. During the perfusion and after one minute the rate was 150, the amplitude 13 mm. After one and one-half minutes the rate had dropped to 141, the amplitude to 11 mm. When the normal Ringer was returned it took a few seconds to displace the bromid Ringer but in ten seconds after the shift the rate was 132, the amplitude 10 mm., showing the greatest bromid depression. One minute later the rate was 135, the amplitude 12 mm. From this time the amplitude and the rate slowly recovered to approximately the normal.

An incomplete series of tests has been made on the relation between the vagus nerve and the frog heart under bromid perfusion. It is well known that under perfusion with Ringer's solution, the vagus nerve maintains its controlling relation to the heart muscle with little change in its efficiency. The vagus nerve is still

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active under bromid perfusion, but our series of experiments is not complete enough to state whether or not there is local change in sensitiveness to vagus control.

EXPERIMENTS ON THE ISOLATED MAMMALIAN HEART

From the therapeutic point of view, reactions of the warm-blooded heart to the bromids is of more interest perhaps than the reactions of the cold-blooded heart. We have made a number of tests by a method which depends on coronary perfusion. Isolated cat hearts were maintained under a perfusion of 3 parts chlorid-Ringer's solution, and 1 part cat blood. A carefully balanced bromid-Ringer's diluted with the same amount of cat blood was used for testing the bromids.

The warm-blooded heart is more sensitive to the bromids than is the cold-blooded heart. Our tests have not been absolutely constant. Out of thirteen experiments three showed primary acceleration of rate, which is generally obtained in the cold-blooded heart. The remaining experiments show primary depression in rate. In all experiments there was a depression of amplitude. If the bromid perfusion was for only a relatively short period then there followed a gradual but slow recovery in both rate and amplitude on renewing the normal Ringer's and blood. In long bromid perfusions arhythmia often sets in which may be removed with chlorid-Ringer's blood.

DISCUSSION OF RESULTS

In summarizing these results one must admit that the inorganic bromids are relatively indifferent to such organs as the heart of the cold-blooded vertebrates. On the hearts of warm-blooded animals the bromids are in the long run sharply depressant whether they be measured by rate or by amplitude. If the bromids are combined with bases in strictly physiologically balanced solutions they are relatively non-toxic, especially to cardiac muscle. On the other hand, if the salts are used without reference to the physiologic balance of bases it often happens that reactions of the heart are relatively misleading, owing not to the primary toxicity of the bromid anion but to the influence of the base or cation. This is particularly true of potassium bromid. Looking over the literature we cannot escape the conclusion that many of the so-called bromid therapeutic effects are distinctly chargeable to the base with which the bromid has been combined.

Correlation between Complexion and Resistance to Auto-Intoxication.—I should like to call attention to the extraordinary variation in the resisting power of the individual as manifested by the color of the hair, not only to the changes in the fat and color of the skin already referred to, but to all other consequences of auto-intoxication. The darker the hair the lower is the resisting power to auto-intoxication, and the more conspicuous are the changes which result from it. On the other hand, if the hair is red or of a peculiar towy color the individual has a minimum of resisting power to the action of these poisons, and that resisting power varies directly with the distribution and with the intensity of the redness of the hair. This is manifested very conspicuously in the influence exerted by the toxins on the appetites of the individual. The darker-haired subject will loathe the sight of food and frequently abhor any sexual relationship, while the red-haired subject rarely manifests these effects, even in the extreme conditions of intestinal stasis. This influence of toxins on the normal appetite is of far-reaching importance in our present state of civilization and is the source of much misery, discontent and trouble, to which I will not do more than allude here.—F. W. Andrewes, M.D., in *Proc. of the Royal Soc. of Med.*

NON-SURGICAL TREATMENT OF CIRRHOSIS OF THE LIVER *

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In discussions of portal cirrhosis of the liver (atrophic cirrhosis) it is stated that death with rare exceptions occurs in from six to eighteen months after the appearance of ascites and other symptoms most characteristic of the disease. For years I watched cases of this disease running a course of the duration mentioned, and alleviated the discomfort of the patients as best I could; but I treated them without hopefulness.

After patients with this disease began to be treated surgically I saw a few recover and return to work; but more of them promptly ran a fatal course. For example, recently I saw a stout and vigorous policeman who had a Talma operation ten years ago on my recommendation.

Moreover, a case of spontaneous recovery came under my observation. A man aged from 55 to 60, with ascites, some anasarca, a quick, weak heart, and cirrhotic liver was under my care in Wesley Hospital. Traces of albumin and casts were found in the urine at first from time to time, but after a few weeks they were constantly present in small quantities. The radial arteries were thickened. He was placed on a milk and farinaceous diet, kept in bed and given physic. To the surprise of those of us who were watching him, the anasarca lessened and disappeared. Later but much more slowly the ascites lessened and finally disappeared. Simultaneously the heart grew stronger. He left the hospital and returned to his work as a shoemaker. About eighteen months later he was brought back to the hospital with all of the symptoms of chronic interstitial nephritis and uremia. In a few days he died and came to necropsy, when general arteriosclerosis, hypertrophy of the heart, contracted kidneys and atrophic cirrhosis of the liver were demonstrated. The development or progress of the renal lesion and hypertrophy of the heart evidently caused the disappearance of dropsy originally due to the cirrhosis of the liver. Rest and suitable dietetic treatment helped to produce a physiologic recovery from the hepatic disease.

Such cases prompted me to study again the literature of hepatic cirrhosis, endeavoring to find some clue to a rational treatment of the disease.

It need not be said that the anatomic changes in the liver produced by this disease cannot be removed. The symptoms which precede fatal results, however, are symptoms of impaired function and intoxication and are not due to the extent of the anatomic changes. It has long been known that extensive advanced hepatic cirrhosis is often found at necropsy in those who never have had ascites or other of the later symptoms of the disease. On the other hand, a mild grade of cirrhosis is sometimes associated with ascites and the symptoms of fatal disease. To repeat; the grade of cirrhosis is not the factor which leads to fatal results.

Pathologists have taught us another lesson. They find that a history of ascites and of other symptoms of hepatic insufficiency characteristic of the disease are wanting in 50 per cent. or a little more of the cases seen at necropsy.

Therefore we are justified in concluding that life and apparent health are compatible with extensive hepatic

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cirrhosis which has been developing and has existed for years. In other words, so long as the hepatic functions are well maintained and symptoms of toxemia are absent, life and apparent health are maintained. Therefore when we speak of hepatic cirrhosis as a disease we must think of it not only as an anatomic change in the liver, but also as a complex of disturbed function and intoxication associated with a characteristic anatomic lesion of that organ. Treatment must be directed then to the relief and prevention of functional disturbances rather than to the anatomic lesion.

By experience with renal diseases and by their study, I had become convinced that often coincident hepatic inactivity precipitated dangerous and fatal intoxication probably generated by toxins or infectious matter in the gastro-intestinal tract, and that the success of the treatment of the renal diseases by starvation or by milk and free catharsis was due more to effects produced on the liver and intestines than to effects on the kidneys. Therefore I resolved to try faithfully a prolonged milk diet in the next case of hepatic cirrhosis which came under my care. A milk diet has been used empirically for many years in the treatment of this disease, and numerous instances of recovery while using it can be found in the literature. Before, however, it had not seemed to me a rational mode of treating the disease, and accordingly I had prescribed milk only as a part of a simple diet which I believed these patients required.

Moreover, there were some reasons for suspecting that the lesions and symptoms of hepatic cirrhosis might be due to a chronic infection of the liver. As I had used hexamethylenamin in cases of cholecystitis with apparent good results, I decided to experiment with it also in cases of hepatic cirrhosis, because of its reputed antiseptic powers.

REPORT OF CASES

CASE 1.—In June, 1906, I was consulted by F., cook in a restaurant, aged 33, a thin, pale, small man with abdomen distended by fluid, and legs and feet edematous. The superficial abdominal veins were prominent. Ascites had existed for three months. He had been tapped twelve days before and a "bucketful of fluid withdrawn." The upper border of his liver was at the nipple line. Cardiac dulness extended 1 inch to the left of the nipple, though the apex-beat was just beneath the nipple. The pulse was 100, regular and tense. The urine, dark amber, of specific gravity 1.022, did not contain albumin or sugar but did contain much indican. The nose had bled often. The patient did not complain of gastric distress, but his appetite was diminished and his tongue coated. There were no hemorrhoids and he was not jaundiced. He never had had severe abdominal colics. His sleep was good. He had drunk heavily of whisky and beer for years.

The patient was not seen again by me until sixteen days had intervened. In the meantime he had been tapped once more; but ascites had redeveloped to the same degree and his physical condition was the same. At this time he began treatment under my guidance. July 18, he complained of feeling weak and drowsy, but otherwise was doing well. The bowels moved copiously several times daily.

A week later drowsiness was gone and the patient did not feel so weak. The abdomen was less distended and there was little edema of legs and feet. The skin was clearer.

A month after he came under treatment there was much less ascites and only a trifle of edema about the feet. The liver then could be palpated. Its surface was rough and hard and the organ was enlarged. At no time had there been any fever. The bowels kept loose. A week later the abdomen was scarcely distended, though a small amount of fluid could be demonstrated in it. Pulse was 102, hard and of medium size.

During the next few days the patient's abdomen became a little more distended, and edema reappeared in his feet. The pulse was softer and quicker. The urine was dark and contained bile. Appetite was less. There was no fever.

Two months after he came under treatment there were no ascites and no edema. He felt stronger and better. A month later there was still no ascites. The pulse was from 90 to 95, regular and stronger. Two weeks later the pulse was 78 and the patient was doing well in all ways.

Three months later he was stronger, and for six weeks had been doing full work. He had gained flesh. The pulse was normal.

Two months later he went to Italy and while away began to drink wine and beer. About ten months after he first came to me and a month after returning from Europe I found once more a little ascites. He went on a milk diet and the medication formerly used. A week afterward no ascites could be found and he felt better. During the next ten days he gained 5 pounds on a more generous mixed diet.

A year after he first came under treatment, the liver was as large and rough as before but there was no ascites and he continued to do full work.

I saw this patient from time to time during the following five years. He had no symptoms of hepatic trouble though occasional minor ailments. Six years after he first came under treatment I saw him with Dr. Walter Allport when he was having mild delirium, probably due to the drinking of beer. Shortly thereafter it was evident that he had cholecystitis and probably gall-stones. After some weeks, as he did not improve, he was operated on by Dr. Walter Allport, when the omentum was found adherent to the intestines and everything about the gall-bladder was adherent to it and the intestines to each other. It was difficult to get at the gall-bladder, but it was emptied of numerous small stones and drained. The liver, where it could be seen, was uniformly yellowish-white and where it was touched very hard. The patient became delirious after the operation and later comatose, in which condition he died.

When this patient came under my care after his second visit to me I directed him to keep his bed and to avoid walking even about the house more than was necessary. He was directed to take a glassful of milk every three hours from 7 in the morning to 10 in the evening and no other food or fluids except a swallow of water if he wished it. At the same time hexamethylenamin was given in 5-grain doses three times daily and at bedtime 1/10 grain of elaterium (Clutterbuck's).

After a few days he was permitted to eat fruit in addition to the milk. After a week and some evident improvement, he was given eight glasses of milk instead of six.

About three weeks after he came under treatment, to vary his diet, which was becoming monotonous, he was allowed bread or crackers or a dish of cereal once daily. About two weeks after he began treatment ¼ grain of powdered strophanthus was added to his medication four times daily. After this gradually his pulse became slower and stronger and the edema lessened more rapidly.

Very gradually his diet was varied more, though he was urged to make milk the staple and to eat only a trifle of other things. Moreover, care was taken that the diet should be one poor in salt.

When, as happened once, ascites and edema increased slightly after being nearly removed, a strict and restricted milk diet was temporarily resumed.

This patient lived for six years after a full development of cirrhosis of the liver with ascites and edema, and for five and one-half years did full work.

CASE 2.—J. L., bartender, aged 62, seen first in October, 1910, noticed three weeks before that the abdomen was enlarged. When I saw him it was greatly distended with fluid and the abdominal veins were prominent. There was little or no edema about the ankles. The pulse was full, strong and 90. The urine, dark amber, of specific gravity 1.025, contained neither albumin nor sugar. The heart was normal in size and its sounds were normal. The patient was constipated, but did not complain of gastric discomfort.

He was urged to keep his bed and was limited to six glasses of milk daily for food. He was given a capsule containing

hexamethylenamin, 5 grains, and extract of digitalis, 1/5 grain, three times daily, and elaterium (Clutterbuck's) 1/6 grain at night.

A week later the abdomen was no longer tensely distended, but it contained considerable fluid. The liver could not be felt, but percussion showed that its upper border was at the normal point, and that it was about 2 inches wide on the parasternal line. The pulse was soft and 90. The abdominal veins were still full, but less so than the week before. The patient was very hungry and therefore was permitted eight glasses of milk daily, and fruit and boiled rice once daily.

A week later only a trifling quantity of fluid could be found in the abdominal cavity. The liver was demonstrably narrow and its undersurface rough and not tender. The pulse was still 90.

The patient's menu was increased by the addition of bread without butter, but with fruit-jelly if he desired it, corn-starch and tapioca pudding, blanc-mange and one egg without salt.

A week later there was no ascites, the pulse was 85, and the patient felt stronger and looked better.

Five weeks after the patient was first seen there was no ascites; the pulse was 78 and was full and strong. He felt well.

This patient was seen at intervals for six months, during which time the ascites did not return. He resumed his work and felt as strong as when in usual good health.

The change to a general diet was made slowly and an abstemious diet was long maintained. He was given hexamethylenamin for several months, but the digitalis was stopped when his heart became normal in rate. The elaterium was stopped soon after the ascites disappeared, but other laxatives were needed from time to time.

Recently, nearly three years after this patient came under treatment, I heard from a friend of his that he was well and working steadily.

CASE 3.—P. L., bartender, aged 54, was pale and thin. The abdomen had been swollen for two months, the feet and legs edematous for two weeks, and for two days the scrotum had been much distended with fluid. The abdomen was very tense. The heart was quick, 100 and normal in size, and its sounds were normal. The urine had a specific gravity of 1.021, and contained neither albumin nor sugar, but a small amount of bile. He had a dry, hacking cough, but there was no evidence of tuberculosis. The patient was feeble and depressed. He had been vomiting in the morning for several months. He had been in the habit of drinking many whiskies daily for years, but had taken comparatively few during the last weeks.

He too was placed first on a diet of six glasses of milk and on hexamethylenamin, digitalis and elaterium.

In ten days the edema was greatly lessened in the abdomen and in all the tissues. At the end of the third week there was only a trifle demonstrable about his ankles toward nightfall. He did not vomit after the first few days that he was under treatment.

A month after he was seen first by me no fluid could be found in the abdomen. The liver could not be felt beneath the ribs, and the area of liver dulness was narrow. There was tenderness in the center of the epigastrium. The pulse was 80 and of good quality. He rarely coughed.

After this date the patient began drinking and eating whatever he had an appetite for. Ascites returned, though in a moderate degree, but after a period of two weeks of treatment it was again undemonstrable. Unfortunately, after this date, the patient did not return for advice.

CASE 4.—C. R., cook in hotel, aged 52, for four months had ascites and edema of legs and feet. The pulse was soft and quick. The heart was quick and normal in size, and the sounds were normal. The urine, of specific gravity 1.022, contained no albumin, sugar or bile. The face was thin, worn and cachetic. The hemoglobin was 90 per cent. by Tallquist scale. A month before some blood was passed from the bowels during three or four days. The fluid in the abdomen had been withdrawn ten times by paracentesis before I saw the patient. He was given the same initial treatment as the others.

A few days later he had again a small hemorrhage from the bowels. In three weeks the edema was gone and the ascites greatly diminished, and he was much encouraged. A few days later he died from copious hemorrhage into the stomach.

BENEFIT OBTAINABLE BY MEDICAL TREATMENT

I shall not lengthen this report of cases by describing two more patients who improved under treatment, losing ascites and regaining apparent health, who were watched for too short a time for me to know whether or not permanent good results were obtained.

I call attention to these cases not because there is anything novel in the treatment but to draw attention to the great improvement and sometimes to the prolonged or permanent good which can be done by medical treatment. Patients suffering from cirrhosis of the liver with ascites and other evidence of serious hepatic disease should be regarded not as hopeless or as capable of help only by surgery.

Alcoholic beverages must be forbidden, not only during treatment but also after apparent recovery. It is well known that cirrhosis of the liver occurs rarely in those who do not use alcoholics, and therefore that alcohol cannot be the immediate cause of the disease. Nevertheless, its baneful influence in producing cirrhosis is fully appreciated, and the occurrence of relapses in Cases 1 and 3 after its use illustrates the need of forbidding the employment of alcoholic beverages.

Cases of recovery on a milk diet have been reported at intervals for a long time. When there is ascites and edema a restricted milk diet will as well as a "dry" diet help to cause an absorption and elimination of the fluid, and with much more comfort to patients. Six glasses of milk daily are not sufficient to maintain strength, but it will maintain life, and if a patient is at rest in bed will prevent much craving for food and drink. This has been my experience in all kinds of dropsies. The fact that it constitutes a diet almost free from salt is important.

Important, however, as the effect of a milk diet is in helping to rid patients of dropsy in cirrhosis of the liver, milk is more important because it is a bland food which, in the course of digestion, produces less irritating products than almost any other. Moreover, it is held by some that good results are due chiefly to the marked change in the bacterial flora in the intestines which an exclusive milk diet effects; and certainly no diet will more surely relieve the gastro-enteritis which forms a part of all active cirrhoses of the liver.

As soon as improvement is evident as shown by a feeling of greater well-being and diminution of ascites and general edema, the quantity of milk can be increased to eight glasses daily. Fruit can be permitted in moderation at almost any time. I make it a practice, however, to give only milk at first, and when after some days the patient greatly craves a variety, I permit the addition of fruit and some time later a little of starches which require in their preparation a minimum of salt, such as corn-starch or sago pudding, blanc-mange, and later a little bread. When the general edema is gone and ascites is nearly gone I prescribe eggs without salt in milk or cooked in a custard or boiled or poached. When the dropsy is gone and the patient is in all ways improved, a general diet may gradually be resumed; but a milk diet or almost exclusively a milk diet must be maintained for about two months at least. These patients must be taught to eat abstemiously, therefore, and confine their diet to very simple kinds of food. They must remember that the liver never will be perfect and that the gastro-intestinal tract may be

deranged again and ascites and symptoms of toxemia characteristic of advanced cirrhosis may be produced.

It is essential that food be not allowed to accumulate in the intestines and there undergo extensive chemical modification by bacteria; therefore the bowels must be moved thoroughly and daily. When there is dropsy and it is desired to cause a copious elimination of liquid by the bowels, a purge is required. Elaterium is my choice both because it provokes large liquid stools and because it is reputed to promote the elimination of toxins. The first day it may be necessary to give ¼ grain two or three times. Thereafter from ¼ to 1/10 grain given at night is usually sufficient, and in many instances a single dose the first day is all that is needed. If elaterium is given at bedtime I find that it rarely produces nausea or pain, but often patients are awakened before morning to evacuate the bowels. When there is no need of liquid stools, milder laxatives, such as cascara or aloes or combinations of these and phenolphthalein will answer.

When in cirrhosis of the liver there is ascites, and especially when there is anasarca, the pulse is quick and the heart is not strong and is sometimes dilated. The myocardium is affected and weakened by the toxins which are provocative of the symptoms of this stage of the disease. At necropsy when death is due to cirrhosis of the liver the myocardium is usually flabby, sometimes fatty and often the heart is dilated. The functional power of the heart frequently is lessened by its displacement by fluid in the abdominal cavity, and also the circulation is interfered with by imperfect expansion of the lungs and movements of the diaphragm from the same cause. Usually blood-pressure is low; especially is this true in the later stages of the disease. Digitalis or other drugs of its group are useful as aids in eliminating the fluids accumulated in the tissues and in maintaining generally a better circulation. Usually about the time the ascites disappears or soon thereafter the heart becomes normal in rate. The relief of the toxemia and rest usually restore the strength of the heart, but in some cases, especially when patients are decidedly anemic, iron and strychnin are also useful.

As explained already, hexamethylenamin was given experimentally because it had been demonstrated that it was eliminable in the bile as well as in the urine, and probably acted as an antiseptic in the hepatic ducts and gall-bladder. If cirrhosis of the liver is due to infection of the liver, it was thought to be the best antiseptic which would reach the organ and be eliminated with its secretions. The experiments of Burnam[1] have taught us recently that hexamethylenamin is not decomposed so as to set free formaldehyd in the bile; but these experiments have not yet been confirmed, and much clinical experience seems to prove the utility of the drug in infections of the gall-bladder. Nevertheless, it is doubtful if it was essential to the improvement obtained in the cases which I have described. Rest, thorough elimination by the intestines and a prolonged milk diet, followed by a slow, graduated change to a mixed diet are undoubtedly the essentials of good treatment.

Such patients should be kept recumbent as long as they are on a decidedly insufficient or restricted diet. This is necessary to prevent undue loss of strength. Patients with the abdominal cavity full of fluid, with the lungs thereby compressed and the movements of the diaphragm impeded, often say that they cannot lie down with comfort and prefer constantly to sit in a chair. If they are encouraged to stay in bed, however, at first bolstered up, usually the second day they find themselves more comfortable and by the third or sooner they can lie down almost or quite flat. In bed they sleep much better and are surer of perfect rest.

If a patient's abdominal cavity is distressingly full of fluid which is not quickly lessened by the treatment just outlined, I would not hesitate to withdraw it through a cannula; but I would employ just as patiently the restricted milk diet and purgative both to prevent the reaccumulation of fluid and to change the bacterial content and fermentation within the intestines and possibly the production thereby of harmful toxins.

A full discussion of the medical treatment of the complications of cirrhosis of the liver such as hemorrhage from nose, esophagus or intestines, cardiac failure, nephritis, peritonitis and pulmonary affections cannot be undertaken here.

I hope that I may tempt others to try patiently the treatment which I have outlined, for I am confident that the life of patients having cirrhosis of the liver often can be greatly prolonged and a degree of health regained which will make life useful and comfortable.

7 West Madison Street.

1. Burnam, Curtis F.: An Experimental Investigation of the Value of Hexamethylenamin and Allied Compounds, Arch. Int. Med., October, 1912, p. 324.

ABSTRACT OF DISCUSSION

DR. E. D. BROWN, Minneapolis: I should like to ask whether Dr. Davis ever followed a case to necropsy after administering elaterium. I followed two cases in which smaller doses were given to necropsy and in both instances a very marked congestion of the intestine was found. That discouraged my use of elaterium. Possibly I am wrong and the congestion may have been due to other causes.

DR. B. FANTUS, Chicago: This paper brought forcibly home to my mind a necropsy which I saw in a case of cystic kidney in which both kidneys were so extensively degenerated that there was hardly any kidney material left, and yet the patient had been perfectly well until within a few days before his death when he developed uremic symptoms suddenly and died in coma. The wonderful compensation that seems to occur in gradually developing destructive diseases of the viscera is well illustrated by the cases that Dr. Davis has cited, and while he was outlining the treatment that he has found successful, I was wondering to what extent the Talma operation might not owe its success to the coincident absolute rest and restricted diet that precedes and follows the operation.

DR. ALEXANDER S. VON MANSFELDE, Ashland, Neb.: I should like to have Dr. Davis state specifically what manufacturer's elaterium he uses. There are many preparations on the market which are not good, and it is difficult for men living hundreds of miles from Chicago to choose the best.

DR. RAY L. WILBUR, San Francisco: These deaths we can call mechanical deaths due to interference with the circulation. Death in cirrhosis of the liver often occurs in this way. It seems as though we should have some means at hand to control the mechanical factors. I should like Dr. Davis' opinion of the systematic administration of calomel in combating the ascites of portal cirrhosis. I have had good results from calomel in 3-grain doses three times a day for three days, together with a milk diet. The effect is often a large output of urine and a reduction of the fluid, which persists for a much longer interval than after tapping under such conditions.

DR. N. S. DAVIS, Chicago: I have never given calomel just as has been described, but only occasionally as a purgative. I use Clutterbuck's elaterium. In my hands it has worked extremely well. Probably elaterin would do as well, although my own experiments with it have not been so uniformly good. I have used Clutterbuck's elaterium many times, not only in this disease, but in renal and other diseases, when I wished to get rid of dropsies. I have rarely seen it cause any discomfort when given at bedtime. Very rarely it has produced

nausea and vomiting and had to be discontinued. I have never seen one of these cases go to necropsy, and consequently I cannot confirm the possible effects on the intestines which have just been described to us, but I have used it so much clinically over many weeks of time without ill results that I do not think that there can be any prolonged or permanent change produced by it in the intestines. Of the first case which I described it might be said that the tappings may have produced a local peritonitis and the adhesions found at the time of operation may have produced a collateral circulation and a disappearance of the ascites, and that this improvement was not the result of dietetic treatment. If that were the only case I might think this explanation probably correct. However, you will notice that there were relapses in that case and the ascites did reappear to some extent, but was removed by dietetic management and treatment. In the second case there was no tapping of the abdomen at all, and the result was just as good. Considering all the cases together I am convinced that the mode of treatment, rather than paracentesis, had to do with the good results obtained.

I am sure that in some, and possibly all, of the cases treated surgically with success the long-continued rest, milk diet or very restricted diet and cleansing of the intestinal tract, such as is assured by good hospital care, had as much, if not more, to do with recovery than the operation. I am sure this is true in the case of the policeman referred to in my paper. His case I recall with distinctness.

SOME NEW PERIMETRY INSTRUMENTS*

CLIFFORD B. WALKER, A.M., M.D., BOSTON

Senior Ophthalmic House Surgeon, Massachusetts Charitable Eye and Ear Infirmary

These new accessories to the perimeter were devised for more rapid and accurate work in the large neurological surgical clinic of Dr. Harvey Cushing and have been found very useful both for routine and for special field-work.

Figure 1 represents two of the graduated disks which range in size from 1/64 sq. cm. to 16 sq. cm., the size of each disk being one-fourth the next larger and four times the next smaller in size, the size of the unit disk being 1 sq. cm. Flat circular test objects only are used and are mentioned in terms of area, in order to avoid confusion in size involved if

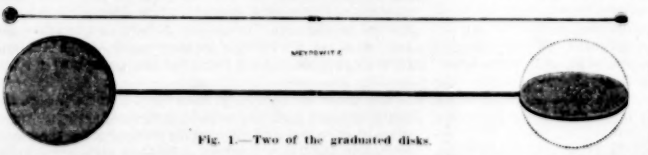

Fig. 1.—Two of the graduated disks.

both squares and circles, mentioned indiscriminately in terms of side or diameter are used. Each disk is set at right angles to the disk on the other end of the rod so that only one disk at a time can be seen as it is moved on the perimeter. The colors, red, blue and green, are of mat paper, matched with the primary spectral colors, and are protected by a knife-edge rim so that they last for months without changing. The lack of appreciable rim is considered an important feature especially for the white disks. Graduated disks give much information particularly in hypophyseal cases and in glaucoma, partial optic atrophy or block and anterior lesions generally after the method of Rönne and Bjerrum.

Figure 2 represents the color interchanger, a very useful instrument for routine work, and especially for determining the presence of color interlacing. Any of the three colors may be exposed in rapid sequence at the center of the blade, while by a further motion a white rimless spot will protrude at the end as the colors disappear. Flat circular test objects of normal size are used, that is, ¼ sq. cm. in area, corresponding to the indiscriminately used square or circle of 0.5 cm., side or diameter. The color changes are made noiselessly and without any motion by which the patient may know or guess the next color. The examiner knows the color displayed, without looking, by the position of his thumb and fingers and by feeling a slight click as the adjustable tension spring on the handle slips into corresponding notches. With such an instrument and a plain perimeter a complete field may be taken more rapidly and accurately than with a mechanical perimeter, and color tests, such as inversion and interlacing, can be made in much more nearly the same color phase than with the latter.

Figure 3 represents the combination blinder and macular selector. The plain blinder is also made up without the combination and can quickly be adjusted to completely cover an eye, light-tight, without obstructing the field of the other eye, as the various makeshifts used are liable to do.

The instrument is entirely of black nickeled metal and

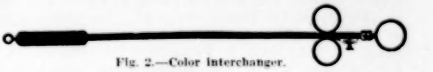

Fig. 2.—Color interchanger.

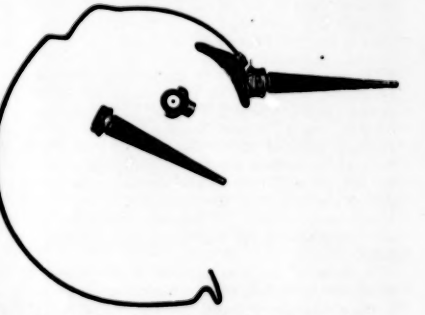

Fig. 3.—Combination blinder and macular selector.

easily sterilized. When a central scotoma is present in one eye only, the shutter on the combination blinder covering the good eye may be opened and the conical tube adjusted so that fixation is obtained coordinately from the covered eye, which can see an area of about 1 sq. cm. at the center of the perimeter. The tube has a ball-and-socket adjustment, so that allowance may be made for strabismus if necessary. To examine the exact center the mirror may be adjusted in place of the tube so as to reflect into the covered eye a spot placed to one side. While the patient observes this secondary fixation spot reflected in the mirror, both the spot and the mirror may be adjusted to maintain the proper direction of the scotomatous eye, as may be determined by fusion tests. In this manner cases of monocular central scotoma that can be examined only roughly, or not at all, by other methods may be successfully handled with these instruments. Further use of these instruments in making hemiopic pupillary tests may be found in another paper presented at the last annual session of the American Medical Association.[1]

233 Charles Street.

* Presented at the Meeting of the New England Ophthalmological Society, March 11, 1913.

1. Walker, C. B.: The Topical Diagnostic Value of the Hemiopic Pupillary Reaction and the Wilbrand Hemianoptic Prism Test with a New Method of Performing the Latter; to be published in THE JOURNAL.

Therapeutics

TETANUS

In spite of pathologic and bacteriologic investigations, and in spite of careful studies in the treatment of this acute, very toxic infection, the last word has not been spoken in regard to its scientific treatment. We therefore welcome the splendid report of Dr. A. P. C. Ashhurst and his assistant, Dr. R. L. John of Philadelphia, on their investigations as to the proper treatment for tetanus.[1]

As already stated, we have yet to learn the best treatment for this disease, though its causative bacillus was discovered by Nicolaier in 1884, and a pure culture was isolated by Kitasato in 1889. Ashhurst carefully reviews the scientific investigations showing that the disease is a pure toxemia, and that the bacilli or spores may exist indefinitely in the tissues and that "no symptoms will be produced unless toxins are formed." On the other hand, "if this toxin is introduced into the system it will produce all of the characteristic symptoms of tetanus, even if no bacilli are present." When small animals are inoculated in the laboratory, the infected limb is the first to show tetanus, and this form is called "tetanus ascendens." In larger animals and in man, when the inoculation is by the bacillus of tetanus, "the symptoms begin first in the muscles of the neck and jaws no matter where is the point of inoculation." This form is termed "tetanus descendens." Though the most frequent point of inoculation in man is in the hand or foot, and a certain amount of poison must soon reach the nearest motor nerves and ascend to the spinal cord, still at the same time the toxins will be absorbed by the lymph-vessels, enter the general circulation and reach the end plates of all the motor nerves throughout the body.

A form of cephalic tetanus is recognized in man which Ashhurst believes is primarily a local tetanus due to the absorption of toxins into the cranial nerves before they reach the general system.

It has been pretty conclusively shown that the toxin of the tetanus bacillus ascends the peripheral nerves, especially the motor, to the spinal cord. When it reaches the cord the symptoms are produced, and these symptoms are first localized in the part supplied by the nerves from the section of the cord first attacked, although the toxin soon disseminates both up and down the cord.

This toxin soon forms a combination with nerve tissue which it is difficult to break up and eradicate. Ashhurst believes that "the nearer the toxin approaches the spinal cord in a nerve, the more impregnably intrenched does it become in the nerve tissue"; also, the readier the access of the toxin to the central nervous system, the smaller is the amount required to kill.

The incubation period depends on the distance from the cord of the site of infection, and if a local tetanus in an animal, for instance, has lasted less than two days, general poisoning may be prevented by section of the nerves of the part or by curare.

The toxin ascends the nerves to the cord by the way of the axis cylinders and is diffused in the cord more or less rapidly, even the sensory portions of the cord becoming affected. The more the sensory portions are affected the more acute is the pain and the more irritable the patient to sensory disturbances. Sooner or later the toxin enters into the general circulation—for the toxin has been found in the blood. As soon as this has occurred, of course, the disturbance of the cord becomes general.

As yet no specific pathologic findings in tetanus have been discovered, though tetanus bacilli have been found in lymph-nodes near the source of infection. The symptoms are due to the stimulation of the motor cells in the spinal cord and to the hypersensitiveness of the sensory cells.

The authors tabulate the therapeutic indications to be met as follows:

1. To prevent the development of tetanus.
2. To remove the source which supplies the toxin, that is the bacilli of tetanus.
3. To head off and neutralize the toxins already formed.
4. To depress the function of the spinal cord.
5. To sustain the life of the patient by proper nourishment, nursing, etc.

PROPHYLAXIS

It is a well-recognized fact that in the case of those who do farm work, barn work, and work about horses or cattle, any injuries received on the streets or during these occupations are more liable to the development of tetanus than injuries received otherwise. It is also true that a suppurating wound or even a fresh wound, innocent at first, may become infected with the tetanus bacilli if the wound or suppurating part is imperfectly cared for. Ashhurst is very sure that if the original wound is properly treated the development of tetanus will be prevented.

Ashhurst and John suggest the following preventive treatment: First, the surrounding skin should be painted with a 3 per cent. alcoholic solution of iodin. (The U. S. P. tincture of iodin is 7 per cent.) Next, all parts of the wound should be made accessible by wide incision, if necessary. This is especially true of a punctured wound. Then the wound should be cleaned by the scissors of all tags and loose shreds of tissue, and the whole wound swabbed with this 3 per cent. iodin solution. The wound should next be dressed with gauze soaked in the same solution. Strong caustics are not used and are inadvisable as they cause sloughing, and further produce a good focus for the growth of tetanus bacilli.

The dressings should be done daily at first, the wound being exposed and thoroughly irrigated with hydrogen peroxid solution, and then again dressed with the gauze soaked in the iodin solution. As soon as healthy granulations are formed, balsam of Peru applications are suggested.

The prophylactic use of antitoxin has often been unsuccessful, but the reason is probably that it has so many times been incorrectly used, and the mortality of tetanus, even when antitoxin has been previously used, has remained very high. The three things to be considered are the frequency, the site of the injection and the quantity to be administered.

The antitoxin is probably all eliminated from the system in from eight to ten days after the injection, and it is important, if antitoxin is to be useful, that it should be present in the system for two or three weeks after receipt of the injury, especially as it cannot be determined when the tetanus bacillus first gained access to the wound. Hence, there should be a second injection of antitoxin about the end of the first week, and perhaps a third injection at the end of the second week. The use of antitoxin powder directly on the wound should

1. Ashhurst, A. P. C., and John, R. L.: Rational Treatment of Tetanus with Report of Twenty-Three Cases, Am. Jour. Med. Sc., June and July, 1913.

not be relied on. The antitoxin should be injected "as near the wound as possible so as to flood the tissues in the immediate vicinity," and if possible it should be given intramuscularly so that the motor nerves may absorb it rapidly. If any nerves are exposed in the wound, antitoxin should be injected into them.

The authors believe that 1,500 units is the proper prophylactic dose. (Tetanus antitoxin is furnished in tubes holding 10 c.c., representing strengths of 1,500, 3,000 and 5,000 units.) While certain individuals may show an urticarial rash and possibly some joint pains, even these evidences of anaphylaxis are not common and no dangerous symptoms seem to result from the use of tetanus antitoxin.

TREATMENT AFTER THE DISEASE IS PRESENT

The first step is to remove the region in which the tetanus bacilli are located, which means the region of the wound, if this can be reached. To this end the wound should be opened widely and thoroughly cleaned of foreign bodies and degenerated tissue. It should then be swabbed with the 3 per cent. alcoholic solution of iodin, washed with peroxid of hydrogen solution, and packed loosely with gauze soaked in the iodin solution. In this case again the authors believe that cauterization should not be done. Good surgical consultation may sometimes advise the amputation of the part, if such is possible, leaving the stump open for the treatment described. If amputation is done, the nearest lymph-nodes should also be removed. By the use of tetanus antitoxin the mortality from this disease seems to have been reduced to at least one-half what it was, and if the authors' rules are followed, it may be reduced by two-thirds at least.

There are various methods of using the antitoxin in tetanus, namely, the subcutaneous, intramuscular, intravenous, intraspinal and intraneural. The authors believe that the intraspinal (subdural) and the intraneural injections are the best. The next best are the intravenous and next the intramuscular, the subcutaneous not being of great value. One of the great advantages of the intraspinal method is that it takes so much less antitoxin to be effective. The intraneural injection into a nerve of the infected region will act much more slowly, but is in line with the absorption of the toxin of the germ. In other words, the injection into the nerve tissues follows the route of absorption of the toxin. Of course in intravenous injection, that is, by the circulatory route, the parts affected will also be reached by the antitoxin, but this method is probably not so effective. The specific action of the antitoxin will not be manifested for several hours.

Intraspinal injections should be given once in one, two or three days, depending on the symptoms. Intraneural injections may be repeated daily if required. By the intravenous route one or two injections in twenty-four hours should be sufficient.

A maximum amount of antitoxin should be given the patient as soon as possible, and the greater the delay in giving the antitoxin, the greater the amount that is needed. It is therefore easily recognized that by the subcutaneous method enormous amounts must be given at enormous expense and with nowhere near the value of the intraspinal or intravenous method. Intravenously the authors advise from 15,000 to 25,000 units at once, the same dose to be repeated if no effect is apparent or if the good effect wears off, in about eighteen hours. Intraspinally they advise from 3,000 to 10,000 units, the dose to be repeated in twenty-four hours unless the symptoms have markedly ameliorated. The authors have injected 1,500 units into the sciatic nerve-sheath and 750 into the anterior crural and obturator nerves. These injections into the nerve trunks must, of course, be made slowly.

Other combative treatments of this poison are phenol (carbolic acid), magnesium sulphate and cholesterin, all given by injections. While phenol may be well tolerated by these patients, the authors believe that all of these treatments are of little value and that spinal injections of magnesium sulphate are dangerous.

Combating the tetanic symptoms of this disease by drugs of antagonistic physiologic activity is more or less successful and of great aid in conjunction with the antitoxin. Chloral and bromids still remain the best spinal depressants. While chloretone has been used, it is more dangerous and should probably not be given in an amount sufficient to cause spinal anesthesia. The action of morphin as a spinal stimulant is well known, and for morphin to overcome spinal irritability the dose must be almost toxic to the cerebrum and higher centers. Ashhurst and John use large amounts of chloral hydrate and potassium bromid, sufficient to cause sleep and quiet, these narcotics being given sometimes by the mouth and sometimes by the rectum.

While fighting the disease, the care of the patient should not be forgotten. A purgative should be early given. Simple, nourishing, non-stimulating food should be given by the mouth, if possible, or by the nasal tube if necessary. Absolute quiet should, if possible, be maintained. Distention from retention of urine should not be allowed. If water is not well absorbed, and especially if there is peritoneal or pelvic inflammation, saline injections into the colon should be given.

Injections of the antitoxin into the spinal cord or into nerves, and perhaps intravenously, should be done under chloroform anesthesia.

Ashhurst and John give tables of their statistics, and carefully describe twenty-three cases of the disease, all of which may be studied with interest and profit.

Two Cases of Almost Complete Excision of the Bladder.—In 1888 Tizzoni and Poggi demonstrated the possibility of total cystectomy. They excluded an intestinal loop in a dog, then resected the bladder with the neck, replacing it by the loop of intestine which was to serve as a receptacle for the urine. After awhile the dog micturated normally but on post-mortem it was found that the dog had developed a new bladder, to which the intestinal loop was only a useless diverticulum. Schwarz, a pupil of Tizzoni's, experimented further without making an intestinal loop. He found that it was possible to take off the bladder immediately above the ureteral orifices and that from the bladder stump and the upper parts of the urethra a new cavity will be formed which is capable of retaining urine. Nicolich reports two cases in *Folia Urologica* 1913, vii, 371, which show that the same thing can be done in human beings. The first patient, 72 years of age, had a carcinoma infiltrating almost the entire bladder except the trigonum. He removed the bladder with the exception of the trigonum, plugged the empty hollow space and sewed the peritoneum in with the upper margin of the abdominal incision. Fifty-two days after the operation the patient was able to micturate once every three hours and to empty the new bladder completely. Ten months after the operation he had completely recovered. In the second patient, 44 years of age, who had been operated on twice before for multiple papillomata, Nicolich performed the same operation. This patient recovered also. After twenty-two days the wound was closed and the patient had a normal micturition once every four or five hours.

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SATURDAY, JULY 26, 1913

CLAUDE BERNARD—A RETROSPECT

Within this month occurred one hundred years ago the birth of one of those striking geniuses who have helped to place modern medicine on that firm foundation of experimental truth on which it now rests. Claude Bernard, who was born in France, July 12, 1813, and died in 1878, not only overshadowed all of his contemporaries in the field of physiology by the brilliancy of his achievements, but also left a record of accomplishments which have had a lasting influence on the development of the medical sciences. In many lines the investigator of to-day is still treading the paths opened by Bernard in the fruitful days of the middle of the century lately closed.

This is not the place in which to recount the condition of physiology and allied studies at the time when Bernard entered the scene. Vitalism and unfounded speculation, long reigning supreme, were beginning to give way to the force of the positive experiment. Morphologic conceptions, fostered by the preponderantly anatomic training of the earlier period, dominated the points of view and directed the energies of the devotees of research. The era of the modern laboratory had just begun and Bernard found an effective teacher in the physiologist Magendie. The pupil became a fitting successor to a competent master; indeed, Bernard went beyond Magendie and eclipsed him. Precisely wherein the two differed is clearly brought out by a biographer: "While recognizing, as clearly as did his master, the value of experiment as the final test of all physiologic views, he (Bernard), on the one hand, deposed experiment from its false throne, making it the servant and not the master of reasoned speculations; and, on the other hand, as we shall see, extended its domains, showing how, under proper use, it could be applied without distinction to all the phenomena of life."

The retrospect which this centennial anniversary awakens calls to mind first of all Bernard's greatest individual achievement, the discovery of glycogen in 1857. The story of the unraveling of the glycogenic function of the liver is an interesting illustration of the method of study which the French physiologist pursued with such remarkable success. Early in his career he set himself the task of following the fate of the foodstuffs in the organism, and particularly the physiologic history of the carbohydrates. Pathologic applications were never lost sight of and he early satisfied himself that the essence of diabetes was an excess of sugar in the blood. Bernard accordingly conceived the idea that there must be some organ in the body designed to consume the sugar in health and he set about to discover it. He fed a dog a mixture containing large quantities of starch and sugar and attempted to follow the carbohydrate as it left the intestine and passed in the blood through the various organs. The blood of the portal vein was found to contain sugar. The substance of the liver and the blood of the hepatic vein likewise contained sugar. As a counterexperiment he examined the blood and liver in a dog that had been fed exclusively on meat. No sugar was found in the portal blood, but it existed in abundance in the liver and blood of the hepatic vein. From these facts he drew the conclusion that "the liver is an organ which produces sugar." "I believe," he wrote in 1853, "that animal physiology is hereby enriched by a new function, *the secretion of sugar.*" The logical consequences of these observations were duly followed up and led to the discovery of glycogen, the antecedent of the hepatic sugar. The perfection of detail with which the problem of animal glycogenesis was worked up is almost unparalleled. Pioneers in science have often laid the foundations on which others have built. In the case of glycogen Bernard "not only laid the very first stone, but left a house so nearly finished that other men have been able to add but little."

Half a century after this great achievement of Bernard we scarcely realize its importance. Glycogen has become a familiar word in physiology and medicine; glycogenesis and glycogenolysis are familiarly drawn into consideration in the most prominent chapters of the physiology and pathology of nutrition. We little appreciate, furthermore, what it meant to demonstrate that synthetic capacities are not solely the characteristic of plant forms—that the animal economy likewise can manufacture and store its "animal starch," glycogen, in analogy with the behavior of the vegetable cells. The regulatory interference of the nervous system—a theme always uppermost in his mind—was taken by Bernard to mark a specific distinction between the two related phenomena. Again, the liver no longer remained merely an organ for producing bile; it acquired a new dignity of function that demanded careful investigation. New paths of inquiry had been trod with conspicuous success.

Later came another achievement which aided materially the understanding of the changes going on in the body and which ranks second in importance only to the brilliant researches on glycogen. Bernard discovered the vasomotor system and in many respects furnished the starting point for our present knowledge of the functions of the sympathetic nervous system. "It is almost impossible," Sir Michael Foster wrote, "to exaggerate

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the importance of these labors of Bernard on the vasomotor nerves, since it is almost impossible to exaggerate the influence which our knowledge of the vasomotor system, springing as it does from Bernard's researches as from its fount and origin, has exerted, is exerting and in widening measure will continue to exert, on all our physiologic and pathologic conceptions, on medical practice and on the conduct of human life. There is hardly a physiologic discussion of any width in which we do not sooner or later come on vasomotor questions."

There are few subjects connected with vegetative physiology which do not bear some impress of the labors of Claude Bernard. An adequate analysis of them would require a systematic treatise. We may recall in passing his studies on the functions of the pancreas. Bernard was the first to obtain pure, normal pancreatic juice; on his experience with it the edifice of our knowledge of its digestive function is built. In the present era, striking contemporary researches like those of Pawlow, with which we are more familiar, have been allowed to overshadow the brilliant pioneer experiments of Bernard on the physiology of the digestive secretions.

What student in the laboratory is not acquainted with the remarkable properties of curare, the Indian arrow poison, with its unique paralytic manifestations on the end apparatus of the motor nerves? We must be brought to realize that the classic experiments of Bernard with this important toxicologic agent brought out the mutual independence of muscular and nervous irritability. Many a research has depended for its successful completion on the abolition of the reflexes by the administration of curare. Another substance, carbon monoxid, not infrequently of moment to the physician, was made to reveal its peculiar behavior toward the organism. "I was led," says Bernard, "to find that this gas rapidly poisons animals, because it instantly dishadow the brilliant pioneer experiments of Bernard.

Seventeen octavo volumes of "lessons" exhibiting an unusual originality summarize the best of what Bernard contributed to science. His conception of the task of the physiologist was to institute a profound analysis, by physical and chemical means, of the phenomena of living bodies. Systems and doctrines derived no sympathy from this clear-thinking Frenchman. "The prudent and reasonable course," he remarks, "is to explain all that part of disease which can be explained by physiology, and to leave that which we cannot so explain to be explained by the future progress of biologic science." In one of the most charming of modern medical biographic sketches, Sir Michael Foster[1] has pointed out that Bernard identified "experimental medicine" with physiology. To him the phenomena of the living body presented the same fundamental features and had to be studied by the same canons of inquiry, whether the body in which they appeared were called sick or called sound.

By example and precept Claude Bernard exercised an unquestionable influence on both teaching and research in this country. But to-day we pause rather to pay a modest tribute to the memory of that exceptional man whose distinguished labors have brought forth more fruit and done more for humanity than have most workers in the field of medicine.

1. Foster, Sir Michael: Claude Bernard, Longmans, Green and Co., New York, 1899.

THE SERUM TREATMENT OF EPIDEMIC MENINGITIS

The director of the Rockefeller Institute for Medical Research, which was engaged for several years in preparing and distributing serum for use in the management of epidemic meningitis, has issued a final report[1] on the value of the treatment, now that the institute no longer prepares antimeningitis serum or collects histories of cases treated with it. In any study of this sort reliable mortality statistics are of the utmost importance in permitting deductions regarding the efficacy of the measures introduced. Enough data are available from the epidemic of meningitis which prevailed in the United States and Canada in 1904-1909 and in southwestern states in the winters of 1911-1913 to place the record of fatalities at an average figure well above 70 per cent. for the different communities involved. These figures are duplicated by the statistical information available regarding the epidemics in foreign countries.

The serum treatment was developed during the pandemic beginning in 1904, to which the high mortality figures given particularly apply. As a result the treatment underwent a singularly rigorous test for its usefulness, since the sporadic cases of meningococcus meningitis tend to be far less fatal than the epidemic disease. The analysis of the results in 1,300 cases actually treated with serum supplied by the Rockefeller Institute and studied in Flexner's report must be a source of permanent satisfaction to American medicine. It shows indubitably that the mortality of epidemic meningitis can be greatly reduced by the application of the specific serum treatment. In view of the fact that the average mortality during the pandemic was approximately 70 per cent., the gross reduction in the serum-treated cases was somewhat less than two-thirds, that is, to about 30 per cent. The extent of reduction is determined by two factors: the ages of the persons affected and the period of the disease at which the subdural injections of the serum are begun. It further appears that fulminant cases of epidemic meningitis are not wholly without the sphere of beneficial influence of the serum.

Now that the initial difficulties of administering the serum by direct subdural injections have largely been mastered, and that the serum is being successfully applied in private as well as in hospital practice, there will doubtless be still further reduction of the mortality, since early injection plays such a large part in deter-

1. Flexner, S.: The Results of the Serum Treatment in 1,300 Cases of Epidemic Meningitis, Jour. Exper. Med., 1912, xvii, 553.

mining the results achieved. It is with a sense of national pride as well as personal congratulations to the institute and the staff which have made possible these everlasting achievements and beneficent procedures that we reprint the conclusions published in the report of the first serum-treated cases. What Flexner wrote in 1909 is abundantly substantiated by even more rigorous subsequent trials. "The antimeningitis serum, when used by the subdural method of injection, in suitable dose and at proper intervals, is capable of reducing the period of illness; of preventing, in large measure, the chronic lesions and types of the infection; of bringing about complete restoration of health in all but a very small number of the recovered, thus lessening the serious, deforming and permanent consequences of meningitis; and of greatly diminishing the fatalities due to the disease."

INTERRELATION OF ALKALIES AND LIME SALTS IN NUTRITION

In continuation of the comments recently made in The Journal on the demands and functions of lime in the dietary[1] it may not be amiss to point out certain interrelations between the various types of inorganic food ingredients that are likely to be of distinct physiologic moment in certain conditions. The alkali salts and the alkali earth salts exhibit properties which render them chemically unlike and may account for a decidedly unlike behavior in the body. The salts of sodium and potassium are readily soluble and thus are easily and speedily transported in the fluids of the organism. Gains or losses of these salts can accordingly be accomplished with readiness. The alkali earth salts, notably those of calcium, tend to be less soluble and therefore require special conditions for their mobilization in the organism. The results of administration or withdrawal of lime are likely to betray themselves only slowly in comparison with other inorganic compounds. Hence the subtle effects which may be involved. Furthermore, the balance of calcium appears to be dependent in no small degree on the simultaneous presence or absence of other factors not yet readily recognized. Excessive administration of other foodstuffs may lead to intestinal losses of calcium. The formation of calcium soaps in the stools of infants is a striking example of the indirect effect of abnormal fat utilization on the availability of lime in the alimentary tract. Excess of carbon dioxid is sufficient to promote the transport of the insoluble phosphate of lime.

The foregoing statements are illustrations of mechanisms whereby calcium is withdrawn from participation in the body's needs. A marked instance of a favorable influence in the direction of conservation rather than loss of lime in the organism is shown in the results of alkali administration. Dubois and Stolte[2] have reported unmistakable gains in the retention of calcium in infants when foods yielding an excess of alkali or its equivalent in carbonates of sodium and potassium were added to the usual dietary. Whatever the reason for this, whether it be that the added alkalies prevent the formation of insoluble lime soaps, or enable the organism better to neutralize the acids which are formed in intermediary metabolism from the combustion of the sulphur and phosphorus of ingested proteins, the fact appears plain that the exhibition of alkalies tends to protect the calcium deposits of the organism and leads indirectly to calcium retention.

Perhaps the unique value ascribed now and then to certain cereal or malt foods used as adjuvants in infant feeding lies quite as much in the character of the inorganic components, such as the alkalies, which they contribute, as in their quota of the true energy-yielding nutrients. In harmony with this, at any rate, is the reported superiority of malt extracts over maltose in respect to the conservation of calcium in the growing child.

1. Lime in the Dietary, editorial, The Journal A. M. A., July 19, 1913, p. 209.
2. Dubois, M., and Stolte, K.: Abhängigkeit der Kalkbilanz von der Alkalizufuhr, Jahrb. f. Kinderh., 1913, lxxvii, 21.

RECENT ANTIVIVISECTION ACTIVITY

Repeated attempts of antivivisection societies to secure legislation in this country restricting medical research have uniformly failed. Now the agitators, by use of various publicity methods, have turned their energies toward rousing popular prejudice. Recently several prominent members of the faculty of the University of Pennsylvania have been arrested on charges preferred by members of the American Antivivisection Society, and are at present awaiting trial. The prominence of the university in which animals are alleged to have been cruelly treated, and the detailed description of the alleged treatment, have led to wide-spread notice of the case in the daily press. Unfortunately only one side is now presented, and consequently in not a few papers the assumption is made that the charges against the investigators are true.

The reputation of the antivivisectionists for veracity is not high. After an exceptionally thorough inquiry into all the charges brought against the laboratory workers in Great Britain—an inquiry lasting five years—the Royal Commission on Vivisection last year discredited practically all the charges, and declared that the harrowing descriptions by the antivivisectionists and their illustrations of operations on animals were in many cases calculated to mislead the public. Last spring Miss Lind-af-Hageby, the noted antivivisectionist writer and editor, brought action for libel against Dr. C. W. Saleeby and the editor of the *Pall Mall Gazette* for publishing statements implying, as she asserted, that she was "a deliberate and systematic liar and that her antivivisection propaganda had been carried on by a systematic campaign of falsehood." Although the statements were not in fact so plain-spoken, the defense offered was that the statements were true. After a care-

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ful trial lasting sixteen days, the special jury, on only twenty minutes' deliberation, brought in a verdict for the defendants. Miss Lind-af-Hageby is liable for the costs of the trial, which were estimated at about $25,000.

Since the agitators against animal experimentation seem not disposed to be scrupulously exact in their contentions, it will be well to suspend judgment in the Philadelphia cases until the evidence is presented on both sides.

METABOLISM IN NON-INFECTIOUS FEVERS

There is unanimity in respect to the fact of increased metabolism in fevers. In ordinary cases the loss of energy incidental thereto involves both the protein and the other constituents of the body. Attention has long been focused on the exaggerated protein destruction, in particular, which is so frequently noted. In fact, two of the most conspicuous symptoms of fevers are the high temperature of the body and the increased metabolism. Whether the pyrexia itself is sufficient to account for all of these phenomena, or whether the heightened destruction of body protein is associated with special toxins produced by the infective agent, has been somewhat debated. There is no doubt that some increase in metabolism can be effected by mere overheating of the body by methods in which no toxic factors such as are produced by micro-organisms are involved. The undue breaking down of proteins produced by the temperature effect alone can be checked in large measure by the ingestion of the protein-sparing carbohydrates. If we read aright the more recent contributions to the subject of nutrition in fever, it would now appear as if the toxin effects likewise are not specifically directed at the proteins. It happens as a rule that fever patients are not possessed of any considerable store of energy-yielding reserves. The disease is attended with diminished appetite. When all of these factors are put together they result in a condition of nutrition in which the food intake and body deposits are not adequate to meet the calorific needs without some heightened destruction of protein. That this loss is not inevitable and that a large ingestion of protein to meet fever conditions is not necessary is well shown by the work of Shaffer and Coleman and others who have maintained a high intake of carbohydrate and fat in suitable patients, and thereby averted the familiar losses of protein induced by the heightened catabolism in fever.

One reason for the difficulty of distinguishing between what is directly attributable to micro-organisms or their toxic products and what to the altered temperature environment of the body cells is readily discovered. In the ordinary infectious fevers there are several influences at work and it is not easy to differentiate the rôle of each. If it were convenient to investigate metabolism in so-called aseptic fevers—if it were possible to induce typical fever independently of harmful biologic agencies which themselves thrive in the organism of their host and produce complex changes—the problem would be simplified. For this purpose animals have been subjected to hot, moist atmospheres. A rise in temperature occurs along with other febrile responses, but the conditions for inducing them are highly unphysiologic.

Other methods of initiating non-infectious fevers have been sought. The latest illustration is furnished by the action of aloin. Subcutaneous injections of this drug are attended with typical febrile increase in body temperature accompanied by a pronounced augmentation of metabolism.[1] At the height of the fever the figures may reach an amount double that associated with the same individual under normal conditions. The point of foremost interest, however, is the fact that the sources of the energy metabolized are dependent on the nutritive condition of the subject. In starving animals it is fat and protein that are drawn on; but when there is an abundance of carbohydrate in the diet, this foodstuff is promptly requisitioned to meet the febrile demands.

These findings, along with the reports that have come from the more recent study of fever in man, make it reasonably probable that if protein is destroyed in undue amounts in febrile disease it is not primarily because of any specific attack on the nitrogenous components of the body, but rather because the nutritive conditions leave no alternative. Diet, therefore, must be given most serious consideration in fever. The starvation practices of the past cannot be tolerated except when alimentation is absolutely precluded owing to attending complications. The value of easily digestible carbohydrates in particular has been underestimated. We are reminded of the comment of Graham Lusk: "It seems strange that in this country, where so much attention has been paid to the modification of infant food, the preparation of suitable diet in fever should have received such scant attention."

THE BLOOD PHENOMENA OF ALTITUDE

The arrival of the summer months, marking the return of the season of mountain climbing, revives the old problems of the physiology of higher altitudes. We are reminded anew of questions that are of perennial interest, some of which are apparently little nearer their permanent solution than they were a decade or even a generation ago. Foremost among them is the relation of altitude to the circulation, particularly to the number of red blood-cells and their hemoglobin content. In 1882 Paul Bert observed that the blood of animals from La Paz in Mexico, at an altitude of 3,700 meters (12,140 feet), had an oxygen-carrying capacity far in excess of that exhibited by the animals on the lower plains. An explanation of this was forthcoming when, in 1890, Viault found that at the height of 4,392 meters (14,410 feet) in Peru, his blood exhibited from

1. Berrár, M.: Die Wirkung des Aloins auf den Stoffwechsel, Biochem. Ztschr., 1913, xlix 426.

7 to 8 millions of red corpuscles per cubic millimeter instead of the customary 5 millions. The same facts have since been observed over and over again. But how are they to be interpreted? Are we confronted, in this interesting finding at higher altitudes and their accompanying rarefied atmospheres, with an actual new formation of corpuscles? If so, this is a unique illustration of the adaptive response of the organism to the necessities imposed by the diminished oxygen tension. This interpretation of the blood phenomena of altitude proposed by its earliest investigators has been assailed from time to time by subsequent students of the subject. The objections interposed are themselves of interest because they suggest still other features of the effect of rarefied atmospheres and also modify our views as to the therapeutic possibilities of residence at higher altitudes. Thus it has been maintained that the greater dryness of the air in these environments, together with increased muscular activity, enhances the loss of water from the body through the respiratory tract in particular, and thereby leads to a concentration of the blood. The corpuscular elements will accordingly exhibit an apparent increase in number in a given volume of blood without any real increase in the absolute numbers present in the entire organism. Zuntz and his pupils have emphasized the possibility of an altered distribution of the corpuscles in different vascular areas, leading to a so-called vasomotor displacement of the cellular blood-elements whereby they become more concentrated in those peripheral regions from which specimens for examination are conventionally taken. Abderhalden has analyzed the entire bodies of animals maintained at high altitudes, and failing to find any pronounced increase in hemoglobin, he explains the undoubted augmentation observed in blood-samples by a concentration of the blood through exudation of plasma into the lymph-spaces. It has further been suggested that the red corpuscles may be conserved better at high altitudes and thus a comparative increase result from the failure of normal destruction. Finally, errors in the technic of blood measurements, etc., due to the diminished pressure at altitudes, have repeatedly been propounded.

It is unnecessary to review the arguments pro and con which have revolved about these contentions. None of them suffices, in our judgment, to exclude entirely the possibility of increased hemopoiesis and the production of blood-cells *de novo* under the stimulus of altitude. The prevailing uncertainty makes welcome any new evidence or critical estimate of what happens at higher altitudes; doubly so when it furnishes some basis for judgment regarding procedures applicable in climatotherapy. Professor Cohnheim and Dr. Weber[1] have now reported the results of an examination of the blood of twenty-three persons who have been engaged for long periods in the operations of the railway ascending the Jungfrau peak in the Alps. Most of them spent considerable portions of their time at altitudes from 2,300 meters (7,546 feet, Eigergletscher Station) upward to 3,450 meters (11,319 feet, Jungfraujoch Station). The importance of these observations lies in the fact that they furnish data regarding persons who have had prolonged experience in the higher altitudes so that the incidents of temporary residence and change of scene may be regarded as equalized or eliminated. They supplement the earlier records from the South American plateaus by results obtained with approved and up-to-date procedures. The new statistics agree in exhibiting values both for red blood-corpuscles and hemoglobin distinctly higher than the "normals" of sea level. Cohnheim maintains that the high figures thus obtained on a large scale from subjects accustomed to live at high atmospheric levels leave no alternative except to assume a new formation of corpuscles under such conditions. Where contrary conclusions have been reached—and there are many such—it is not unlikely that the period of residence was too brief to permit the stimulating effects of altitude to manifest themselves in any conspicuous way.[2]

The renewed assumption of an increased functioning of the hemopoietic organs at high altitudes has further been supported by observations conducted on Monte Rosa in the Alps relating to the regeneration of blood after severe anemias. In the international laboratory built on the Col d'Olen at an altitude of 2,900 meters (9,515 feet) and dedicated to the memory of Angelo Mosso, Laquer[3] has found that dogs deprived by hemorrhage of half their blood-supply regenerate it in about sixteen days. Under precisely comparable experimental conditions twenty-seven days are required at lower levels for the restoration of the same blood loss. Laquer believes that the lower partial pressure of the oxygen is the effective stimulating factor in this more pronounced regeneration so strikingly shown at great heights. How long this latest explanation will withstand the attacks of the increasing number of Alpine physiologists remains to be seen.

1. Cohnheim, O., and Weber: Die Blutbildung im Hochgebirge, Deutsch. Arch. f. klin. Med., 1913, cx, 225.

2. Those interested in the literature of this subject may consult a detailed review by Cohnheim, O.: Physiologie des Alpinismus, Ergebn. d. Physiol., 1903, ii (1), 612; 1912, xii, 629.

3. Laquer, F.: Höhenklima und Blutneubildung, Deutsch. Arch. f. klin. Med., 1913, cx, 189.

Current Comment

CHIROPRACTIC—A JUDGE'S OPINION

Chiropractic is a freak offshoot from osteopathy. Disease, say the chiropractors, is due to pressure on the spinal nerves; ergo it can be cured by "adjusting" the spinal column. It is the sheerest quackery, and those who profess to teach it make their appeal to the cupidity of the ignorant. Its practice is in no sense a profession but a trade—and a trade that is potent for great harm. It is carried on almost exclusively by those of no education, ignorant of anatomy, ignorant even of the fundamental sciences on which the treatment of disease

depends. A chiropractor of Canton, Ohio, was recently fined $200 and costs and sentenced to sixty days in the workhouse for practicing medicine without a license. In imposing sentence, Judge Krichbaum, before whom the case was tried, said in part:

"There is unfortunately growing up in this country of ours a general defiance of the law. In the opinion of the court, you and the school to which you belong are in this class. This court does not take much stock in the claims you make that you were not practicing medicine. It is not within the province, nor the purpose of the court to criticize the class of school to which you belong, nor the efficiency of your treatment. . . . You claim to be a doctor of chiropractic; the technical meaning of the word 'doctor' is a person, learned, well-taught, well-informed, and universally a doctor is recognized as being able to alleviate physical suffering. For a long time there has been running in the magazines an advertisement: 'Be a Doctor of Chiropractic, the new Drugless Healing Science of Spinal Adjustment; *a common school education is all you need to begin;* our simplified training does the rest.' Men who believe in education, who glory in our school system, in our colleges, are staggered at this audaciousness. Certainly to conform to the requirements in the practice of medicine in the State of Ohio, could only make you more efficient, more capable for the practice of your profession. . . . The logical results of permitting you to practice medicine without a certificate from the state board would be to lower the standards of schoolteachers, of druggists, of physicians and every other class necessary to maintain an orderly regime of civilization, and wholesome living—in short, to open the doors for all charlatans to prey on the suffering. There is a growing tendency to raise all intellectual standards. The execution of this law rigorously will be a step in this direction."

Canton is to be congratulated on having a jurist with as broad a grasp of fundamentals as that shown by Judge Krichbaum.

HEAT-EXHAUSTION AND SUNSTROKE

At this season the differentiation between heat-exhaustion and sunstroke is most important since the treatment differs radically and a mistake might be serious. To ice the body of a heat-exhaustion patient would almost assure a fatal issue, while, on the other hand, no one would be likely to give a sunstroke victim a hot bath. Heat-exhaustion comes from continual exposure to high temperatures while at hard and exhausting labor. A cool and clammy skin, probably subnormal temperature, and small and rapid pulse are characteristic; the end of a hot wave is likely to bring many such cases. Ammonia, strychnin, rest and a bath at least tepid are indicated, alcohol being avoided. Sunstroke, heatstroke or thermic fever comes from exposure to the sun or to intense heat, especially in one predisposed by fatigue, indigestion, previous illness or alcoholism or excesses such as are stupidly indulged in during hot weather. Those who have once suffered thermic fever are especially prone to recurrence. The victim may fall unconscious and die at once or after a few hours of coma, dyspnea and heart weakness. In other cases perspiration ceases, and there are headache, dizziness, nausea, indistinct vision, flushed face, dry and hot skin, and muscular relaxation. In addition to these symptoms there may be spasms or convulsions, very high temperature perhaps to the thermometer's limit, frequent and full pulse, deep or stertorous respirations, and unconsciousness deepening to coma (with Cheyne-Stokes breathing in fatal cases). Here the treatment is cold sponging or bathing in ice-water, enemas of ice-water, ice frictions and the ice-cap. Venesection in some cases may be a life-saving measure, and should not be forgotten.

PROPERTY VERSUS LIFE

To the legal mind, apparently, the rights of property have always seemed of more importance than human life. For hundreds of years it was possible for a man brutally to maltreat his child with less legal risk than if he had poached a hare. Gradually human life became more valuable; but even to-day it fails to receive the protection that is accorded to property. It is no uncommon thing to find reported in British newspapers cases in which a drunken navvy has kicked and otherwise abused his wife, to receive no greater punishment at the hands of the law than a paltry fine; while the unhappy wight who, driven by hunger, steals a loaf, is sent to prison. Nor do we need to go oversea to find such instances of the worship of property. An excellent illustration of the workings of the legal mind in problems of this kind is to be found in a study of ten Notices of Judgment[1] issued by the United States Department of Agriculture and giving in detail the account of ten violations of the Food and Drugs Act. These ten cases deal with charges brought against the firm of Hawley and Hoops, New York, who are in the candy business. Hawley and Hoops sell what is known as "penny goods"; that is, the kind of candy purchased by the little tot who has been given a penny to spend. Ten different specimens of Hawley and Hoops' penny goods were seized by the officials of the Bureau of Chemistry and analyzed. All of them were found to be adulterated with arsenic and most of them contained shellac. All of them were being sold as chocolate candies yet the officers reported that some did not even have the predominating flavor of chocolate. In every case the firm pleaded guilty. In nine out of the ten cases no penalty was imposed, the court suspending judgment. In the tenth case a fine of $50 was imposed. The case in which a fine was imposed was the one, and the only one in which the company had not merely sold a poisonous product to little children but had misstated the net weight of the package in which the arsenic-containing candies came! Selling to little children as chocolate candies a mixture containing arsenic and shellac but not containing even the predominating flavor of chocolate is, apparently, in the eyes of the law, a trivial offense. But selling to a dealer a package marked five pounds that really contained only four pounds fourteen and five-eighths ounces, that is a crime!

HARVARD MAKING A STUDY OF TROPICAL DISEASES

Harvard University has undertaken an important work in establishing a school of tropical medicine, the course of which is planned to extend over a period of six months. This school has been placed under the charge of Dr. Richard P. Strong, who with two other

1. Notices of Judgment, Nos. 2353 to 2362 inclusive.

instructors in the new school, Drs. E. E. Tyzzer and C. T. Brues, is now in Peru, South America, making a special study of the protozoa. We are advised by a cablegram that several important discoveries have already been made. It is reported that the cause of Oroya fever is a protozoon and that this disease is distinct from verruca peruviana, whereas formerly it has been looked on as an initial febrile stage of the latter disease. The parasite appears to belong to the genus *Theileria*, and this is the first time the genus *Theileria* has been reported as pathogenic for man. Verruca peruviana, on the other hand, is reported as due to a virus with which the members of the expedition have succeeded in inoculating animals and thereby reproducing definite lesions of the disease. According to the cablegram, therefore, the members of the expedition have established a differentiation between Oroya fever and verruca peruviana, a matter of great importance. It is evident also that much has been added to the known facts regarding the etiology and the transmission of the diseases which, in turn, should lead to improved methods for their prevention and treatment. The researches of this new department of Harvard University will be watched with much interest.

JUSTICE

S. H. Clark and C. H. Crockard of Bismarck, North Dakota, edit and publish *Jim Jam Jems*, a sheet that has printed not only obscene and indecent matter but also personal attacks on numerous individuals and organizations, including the American Medical Association and some of its officers and members. To the interests it represents it has given value received. The publication has not been distributed through the mails, having, as we understand, been debarred from the use of the United States postal service; the express companies have been utilized instead. It may interest our readers to know that the editor and publisher have recently been found guilty of sending obscene matter in interstate commerce. Each has been sentenced by a United States judge to four years' imprisonment in the federal penitentiary and to pay a fine of $2,000 and half the costs of the prosecution. Incidentally, the daily press has within the past few days reported the conviction of a newsdealer for handling this obscene sheet. The papers state that this is the first of a number of suits the government has started against other newsdealers.

Medical News

CALIFORNIA

Hospital Opened.—The first ward of the Methodist Social Service Hospital, Los Angeles, was officially opened July 11.

Hospitals Organize.—The Association of California Hospitals was organized in Los Angeles July 9. The members of the board include Drs. Walter M. Lindley, R. L. Byron, H. P. Barton, O. C. Welbourn and W. M. Lewis, Los Angeles; R. Brown, San Francisco; D. Gochenaur, San Diego; F. C. E. Mattison, Pasadena; J. W. Ward, San Francisco, and F. K. Ainsworth, San Francisco.

Personal.—Dr. F. C. Shurtleff, Los Angeles, was presented with a gold special police shield by the policemen of University Station in appreciation of service rendered to the late Police Captain Bradish.——Dr. A. B. Royal, formerly of Pasadena, who escaped from the Sierra Madra Sanatorium, was found in a canyon, July 11, and returned to the sanatorium. ——Drs. M. F. Clark and A. S. Tuchler, San Francisco, arrested in connection with the death of Miss Etta Clark, have been released, the autopsy showing that a criminal operation had been performed on the young woman before these physicians were called into the case.——Dr. N. Rosencranz has been appointed city physician of San Francisco.

COLORADO

Babies' Health Contest Association Incorporated.—The Colorado Babies' Health Contest Association has been incorporated at Denver with Dr. Mary Elizabeth Bates as president. The association will hold annual exhibts at various towns in the state.

Personal.—Dr. William H. Sharpley, formerly health commissioner of Denver, has been appointed superintendent of the Denver County Hospital to succeed Dr. Rose Kidd Beere. ——Dr. Charles Jaeger has been appointed coroner of Denver County.

CONNECTICUT

Personal.—Dr. William R. Hanrahan, Bristol, was thrown from his carriage, July 13, fracturing his right arm.——Dr. Gabriel U. Jackowitz, New Haven, was severely burned by the back-firing of the engine of his automobile.

Dies from X-Ray Exposure.—Burton E. Baker, an expert in the use of the x-ray and inventor of the x-ray tube, died at his home in Connecticut, July 10, from the effects of exposure to the x-ray, after an illness of nearly a year.

Hospital Notes.—The Babies' Hospital, Hartford, has opened for the season under the charge of Drs. Robert Starr, H. F. Flaherty, W. G. Murphy and C. B. Brainard, with a staff of about fifteen nurses.——Incorporation papers of the Physicians' and Surgeons' Hospital, New Haven, with a capital stock of $250,000, have been filed with the secretary of state. A site has been secured on Humphrey Street near Orange, and it is contemplated to erect a four-story building as a general hospital. The building will contain two general wards, four semiprivate wards and about forty private rooms. Among the incorporators appears the names of Drs. Leonard Bacon, Nelson A. Ludington, M. J. Adams and Clarence E. Skinner.—— Two new ward buildings to accommodate one hundred patients and three other buildings have been authorized by the legislature to be erected at the Norwich Hospital for the Insane.

IDAHO

New Secretary for State Board.—Dr. J. F. Schmershall, Jerome, has been elected secretary-treasurer of the Idaho State Board of Medical Examiners, vice Dr. O. J. Allen, Bellevue, term expired.

ILLINOIS

State Hospital Soon to be Built.—The president of the Illinois Board of Administration states that as soon as the topographical survey of the land secured for the Alton State Hospital has been completed, plans will be prepared and contracts awarded, and that the construction work will commence without delay.

Personal.—Dr. J. D. Dickinson, Galva, who was operated on in Galesburg, recently, is reported to be convalescent.——Dr. Clara Harrison Towne, Lincoln, director of psychology in the State School and Colony, has started for Europe.——Dr. Sandor Horwitz, Peoria, was injured in a collision between his automobile and a street car, July 16.——Dr. Mather Pfeiffenberger, Alton, has gone to Europe.——Dr. T. J. Foster, Centralia, has returned from Europe.——Dr. John F. Taylor, Buda, was seriously injured in an automobile accident near Coal Creek, July 14.

Chicago

Off for Europe.—Dr. and Mrs. Alexander F. Stevenson, Dr. and Mrs. John B. Murphy and Dr. Julius H. Hess, have sailed for Europe.

Personal.—Dr. John H. Long, professor of chemistry in Northwestern Medical School, has been appointed dean of pharmacy of Northwestern University.——Captain John S. Nagel, M. C., Ill. N. G., assigned Second Infantry, while on duty at Camp Lincoln, Springfield, was thrown from his horse, fracturing his right leg above the ankle.——Dr. James W. Jobling, director of the Nelson Morris Research Laboratory at the Michael Reese Hospital, is said to have resigned to become a staff chief of the laboratory of the Columbia University, New York City.——The degree of D.Sc. was conferred on Dr. Ludvig Hektoen of the University of Chicago

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by the University of Michigan at its recent convocation exercises.——The University of Michigan has conferred the honorary degree of M.A. on Dr. Lydia DeWitt of the Otho S. A. Sprague Memorial Institute.

INDIANA

Personal.—Dr. T. C. Kennedy, Indianapolis, who has been seriously ill with nervous prostration, is reported to be convalescent.——Drs. J. H. Oliver, W. F. Clevenger, David Ross, Hugo Pantzer and J. F. Barnhill, Indianapolis, have gone abroad.——Dr. Oliver P. Graham, Jeffersonville, who has been seriously ill with pneumonia, has gone to Mackinaw Island, Mich., to recuperate.

Hospital News.—The commissioners of Marion County have decided to erect a county tuberculosis sanatorium near Juliette.——A hospital will be opened at Sullivan August 1, by Drs. G. D. Scott and Joseph R. Crowder.——Plans have been made for the erection of the Marion County Detention Hospital for the Insane, Indianapolis.——The cornerstone of the new St. Francis Hospital, Beech Grove, was laid with impressive ceremonies July 16.

IOWA

Work Ends at Drake Dispensary.—The free dispensary connected with Drake University College of Medicine, Des Moines, was conducted for the last time May 31. The work of the dispensary is being continued by the Iowa Methodist Hospital.

Personal.—Dr. Paul Van Metre, Atkins, has been appointed superintendent of the Svart Memorial Hospital at Nakawn Sri Tamarat on the southern coast of Siam and will sail from San Francisco October 1.——Dr. A. L. Wright, Carroll, has started for Europe.——Dr. Raymond C. Coleman, Iowa City, has started for Germany.

LOUISIANA

The Health Train.—The Louisiana Health Exhibit Train with a staff of eight lecturers and demonstrators headed by Dr. Oscar Dowling, left Shreveport July 14 for a tour of the St. Louis Southwestern Railroad.——Dr. Dowling has received a request for use of the train for a tour of Alabama in September.

Reorganization of Tulane.—The president of Tulane University has announced the permanent reorganization of the medical department. The department will hereafter be known as the Tulane College of Medicine and will be divided into four schools, each with a separate dean and staff, namely: the School of Medicine and Pharmacy, dean Dr. Isadore Dyer; the Post-Graduate School, dean, Dr. Charles Chassaignac; the School of Hygiene and Tropical Medicine, dean, Dr. Creighton Wellman, and Dentistry, dean, Dr. Andrew Friedrichs. The following elections, transfers and changes in the Post-Gradute School of the University: Dr. Henry Dickson Bruns, transferred from the emeritus to the active list, as professor of diseases of the eye; Dean Creighton Wellman, elected professor of tropical diseases and preventive medicine; Dr. J. T. Halsey, elected professor of clinical therapeutics; Dr. C. C. Bass, elected professor of clinical microscopy; Dr. W. W. Butterworth, elected professor of diseases of children; Dr. George S. Bel, elected professor of internal medicine; Dr. L. R DeBuys, elected assistant professor of diseases of children; Dr. Allan Eustis, elected assistant professor in dietetics and nutrition; Dr. L. L. Cazenavette, elected instructor of diseases of the nervous system; Dr. Amedee Granger, elected demonstrator of radiology; Dr. Wallace J. Durel, elected instructor in tuberculosis; Dr. E. L. Leckert, elected assistant in clinical surgery; Dr. J. D. Martin, transferred from assistant in general surgery to assistant in diseases of the ear, nose and throat, and Dr. P. J. Kahle, elected assistant in surgery of the genito-urinary organs and rectum.

MARYLAND

Personal.—Dr. H. Arthur Mitchell, Elkton, has been appointed aid on the staff of General Gaither, N. G., Maryland.——Dr. Thomas B. McDonald, Cumberland, is reported to be ill with typhoid fever at his home.

Baltimore

Personal.—Drs. William H. Welch, Arthur D. Hirschfelder and Lewellys F. Barker have sailed for Europe.——Dr. Arthur D. Hirschfelder of Johns Hopkins University has accepted the appointment of professor of pharmacy and director of the pharmaceutical department of the University of Minnesota.——Dr. J. Morris Slemons, associate professor of obstetrics at Johns Hopkins Medical School, has been appointed head of the department of obstetrics and gynecology and director of the woman's clinic in the University of California, San Francisco.——Dr. Cherbonnier, 87 years of age, was elected an honorary member of the Baltimore County Medical Association, July 11.

MINNESOTA

Personal.—Dr. C. E. Dutton, Minneapolis, president of the Minnesota State Automobile Association, is accompanying the Glidden tour from Minneapolis to Glacier National Park as medical representative.——Dr. J. Clark Stewart, Minneapolis, is reported to be seriously ill with heart disease in St. Agnes' Hospital, Baltimore.——Dr. Ernest B. Hoag, school hygiene supervisor for the State Board of Health, has been engaged to continue his work in the Minneapolis schools as an employee of the State Department of Education and also to give lectures on school hygiene in the University.——Dr. W. J. Mayo, Rochester, sailed for England July 23.

MISSOURI

Personal.—Dr. George McNeil, Sedalia, underwent amputation of a finger, July 11, the result of x-ray burns.——Drs. J. Elliott Royer, H. H. Look and Gordon A. Beedle, Kansas City, have sailed for Europe.——Dr. George L. McCutchan, Lewis County, has been appointed physician at the State Penitentiary, Jefferson City.——Dr. George A. Still, Kirksville, has returned from Europe.——Dr. C. A. Revelle has been appointed police surgeon of Kansas City, vice Dr. Eugene Carbaugh, resigned.——Drs. R. T. Sloan, W. J. Frick and J. L. Robinson have resigned from the visiting staff of the Kansas City General Hospital and Drs. Ernest F. Robinson and M. A. Hanna have been appointed members of the staff.

St. Louis

Personal.—Dr. Elias Potter Lyon, dean of the University of St. Louis School of Medicine, has been made dean of the University of Minnesota College of Medicine and will take charge in September.——Dr. A. C. Henske has resigned as chief of the tuberculosis clinic to take up private practice and do research work for the St. Louis Society for the Relief and Prevention of Tuberculosis.

NEW JERSEY

New Officers.—Physicians' Auxiliary of the Millville Hospital, July 14: president, Dr. J. W. Wade; secretary-treasurer, Dr. James S. Knowles.

Personal.—Dr. Joseph Adler has been appointed city physician of Bayonne.——Dr. John T. Beckwith has been appointed chief of the board of pension examiners of Atlantic City.——Dr. F. H. Pierson, Elizabeth, charged with running down a boy with his automobile, was discharged, the officers who made the arrest saying that there were no grounds therefor.——Dr. Hugh M. Hart, surgeon of the fire department of Newark, who was operated on recently in the Presbyterian Hospital, is reported to be in a serious condition.

NEW YORK

New York City

Personal.—Among those who have recently sailed for Europe are Dr. Albert H. Fridenberg, Dr. Henry J. Wolf, Dr. F. S. Jackson, Dr. and Mrs. J. E. L. Davis, Dr. and Mrs. George M. Swift, Dr. and Mrs. T. C. Janeway, Dr. F. W. Baldwin, Dr. and Mrs. Lee M. Hurd, Dr. and Mrs. John J. McGrath, Dr. and Mrs. G. K. Swinburne, Dr. John A. Fordyce, Dr. and Mrs. Graham Lusk, Dr. Homer Swift and Dr. James S. Ames of Babylon, L. I.——Dr. and Mrs. P. E. Tiemann have returned from Europe.

Baby Welfare Work.—The last two weeks have scored another triumph for the Babies' Welfare workers. Despite the hot weather the records for the first two weeks in July show 72 fewer deaths than during the corresponding period of 1912. For the week ending July 12 there were 272 deaths in the Greater City compared with 309 for the corresponding week of 1912. The greatest reduction was in Brooklyn where there were 84 deaths for the week ending July 12, against 111 for the corresponding week of 1912. The enrolment at the milk stations in Brooklyn has more than doubled during the past year. It is specially noted that there has been a decrease in the number of deaths from congenital causes this year.

Decalogue for Infantile Health.—The Brooklyn Civic League, which has been waging a campaign against the fly, has drawn up a set of commandments for babies' health, each command-

ment being amplified and explained for the benefit of mothers. The commandments are as follows:

1. Do not give your baby impure milk.
2. Do not give your baby ice-water.
3. Keep the flies off the baby's food and do not give it anything to eat on which the flies have feasted, unless it is first boiled.
4. Do not dress the child too warmly.
5. Bathe your baby a few times a day.
6. Do not keep baby in the kitchen.
7. Do not allow your baby to lie directly in the sun.
8. Do not give your child any tea, coffee or alcoholic drinks.
9. Do not give your baby any pacifiers.
10. Do not give the child any soothing syrups.

NORTH CAROLINA

New Hospital for Asheville.—A movement is under way at Asheville to secure $100,000 for the building and equipment of a new Mission Hospital in that city.

Personal.—Dr. John A. Ferrell, for three years director in charge of the Rockefeller hookworm work in the state, having been selected as general manager of the entire work of the Rockefeller Foundation in the hookworm work, has resigned as assistant secretary for the Eradication of Hookworm for the State Board of Health and will move to Washington. Dr. Ferrell will continue to discharge his duties for the time being as secretary of the Medical Society of the State of North Carolina.——Dr. C. D. Hill has been appointed assistant superintendent of Watts Hospital, Durham.——Dr. W. S. Rankin, secretary of the State Board of Health, sailed for Panama July 9 on a two weeks' trip.

PENNSYLVANIA

Tuberculosis Camp in Carbon County.—Contracts for a modern tuberculosis camp and refuge for crippled children at Aquaschicola, Carbon County, to be erected for the Volunteers of America, will shortly be awarded. The camp will be built on a sixty-acre farm belonging to the Volunteers, on which there is now a temporary sanatorium managed by the organization. This farm is 1,200 feet above the sea level, is surrounded by a forest of fir trees and has a large stream flowing through one part. The camp, which will be modeled on the plan of the State Sanatorium at Mount Alto, will be constructed entirely of concrete; will comprise a central building, 75 by 100 feet, containing dining-room, reading-room, dispensary and quarters for the medical staff and nurses, surrounded by square and hexagonal bungalows. The square houses will be supplied with two beds each and the hexagonal with one. Accommodations for about seventy-five patients will be provided. In connection with the camp, a dispensary will be opened in Philadelphia for the radiographic treatment of patients in the incipient stages.

Philadelphia

Off for Europe.—Drs. S. MacCuen Smith, Ernest LaPlace, H. K. Pancoast, George E. Pfahler and Matthew Woods have sailed for Europe.

Personal.—Dr. C. J. Stamm, charged with negligence in the matter of a death certificate, was brought before a magistrate, July 14, and after investigation was exonerated and discharged.——Dr. R. H. Sylvester, assistant in the department of psychology in the University of Pennsylvania, is to establish a laboratory in the University of Iowa, Iowa City, for the study of delinquent children.

VIRGINIA

Anti-Malarial Association Incorporated.—The Virginia Society for the Study and Prevention of Malaria, with headquarters at Norfolk, has been incorporated, without capital stock.

Personal.—The residence of Dr. Job Holland, Suffolk, was burned, July 13.——Dr. Moses D. Hoge, Jr., has been reelected a member of the Richmond Board of Health.——Dr. S. S. Gale, Roanoke, has been elected president of the Surgeons' Club of Rochester, Minn.

WASHINGTON

Personal.—Dr. E. O. Houda, Centralia, has disposed of his interests in the Houda Private Hospital and will go abroad for a year.——Dr. and Mrs. J. W. Stevenson, Palouse, have gone to New York for the summer.

State Association Meeting.—The twenty-fourth annual meeting of the Washington State Medical Association was held in Everett, July 14-16, and the following officers were elected: president, Dr. C. J. Lynch, North Yakima; president-elect, Dr. C. W. Sharples, Seattle; vice-presidents, Drs. J. R. Brown, Tacoma, and Don Palmer, Seattle; secretary-treasurer, Dr. C. H. Thompson, Seattle (reelected), and trustees, Drs. W. N. Hunt, Burlington; L. M. Simms, Kalama; L. H. Redon, Seattle; J. R. Yocum, Tacoma; J. M. Semple, Medical Lake; S. E. Lambert, Spokane; C. N. Suttner, Walla Walla, and L. Ganson, Odessa. The 1914 meeting will be held in North Yakima and that for 1915 in Tacoma.

WISCONSIN

Babies' Pavilion Opened.—A babies' pavilion has been opened in Milwaukee near the North Point Pumping Station, with accommodation for sixty infants.

Personal.—Dr. P. McKittrick, Eau Claire, was operated on in Augustana Hospital, Chicago, July 2, for carcinoma at the base of the right side of the tongue.——Dr. Solon Marks, Milwaukee, celebrated his eighty-fifth birthday, July 14.——Dr. Rock Sleyster, for four years physician to the Wisconsin State Prison, Waupun, has been appointed superintendent and steward of the new hospital for the criminal insane, which is nearing completion at Waupun.——Dr. G. H. Ripley, Kenosha, has been elected president of the Wisconsin State Board of Medical Examiners.——Dr. H. V. Weld, Campbellsport, was seriously injured by the overturning of his automobile, recently.

GENERAL

Bequests and Donations.—The following bequests and donations have been announced:

Mount Sinai Hospital, New York City, a contingent bequest of one-half of the residuary estate of Dr. Sigmund Lustgarten, amounting to about $85,000.

New York Hospital, and the Isabella McCosh Infirmary, Princeton, N. J., each $5,000 for the endowment of a bed.

Boston Home for Aged Cripples, Boston Floating Hospital, New England Hospital for Women and Children, Industrial School for Crippled and Deformed Children, St. Luke's Home for Convalescents, Vincent Memorial Hospital, Children's Hospital of Boston, and Boston Home for Incurables, each $5,000 by the will of Charles B. Slas.

Infectious Diseases During June and July.—All of the infectious diseases have continued their prevalence during the early summer months but in a lessened degree, measles, perhaps, holding the lead in a number of cases.——During June and July small-pox has continued to be wide-spread, though in no serious epidemic form.——With the advent of warm weather infantile paralysis made its appearance in a number of places. The chief center of occurrence throughout the United States during June was perhaps in Texarkana, Texas, and in various towns along the Kansas City Southern R. R. in that region, forty-five or fifty cases having developed. The disease for the most part was mild and the mortality was not great. At this time the epidemic has subsided and only scattered cases are reported throughout the country.——About twenty cases of beriberi were found in one of the State Insane Asylums in Austin, Texas.——The Thompson-McFadden pellagra commission resumed its investigation into the etiology of pellagra with headquarters at Spartansburg, S. C. It has been reported that Dr. William H. Harris of the School of Tropical Medicine of Tulane University has succeeded in producing pellagra in monkeys by inoculation with a filterable virus obtained from cases of pellagra. The disease in monkeys was pronounced genuine pellagra by Dr. C. C. Bass, head of the Department of Tropical Diseases in the University. A preliminary report is soon to be made. The Thompson-McFadden commission has also taken up the experimental production of pellagra in monkeys at Spartansburg.——Reports of bubonic plague in the West Indies have stimulated the health authorities in the gulf and southern ports to renew their efforts toward the exclusion of rats which might be brought in by shipping at those ports.

The College of Surgeons of America.—The College of Surgeons of America announces the method of procedure which is required to attain fellowship in the organization. The board of managers, consisting of fifteen surgeons from all sections of North America, has the task of formulating the membership plan, which includes the reception of applications for membership and the final election to fellowship of those who fulfil the standard of requirements. Three classes of surgeons are eligible to immediate election to membership in the college. These groups include surgeons and men practicing surgical specialties who are recognized as surgeons of established reputation and divided for convenience into three classes: "A," men who were chosen to organize the college by the committee on foundation; "B," surgeons who are men-

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bers of one of the fifteen national organizations of surgeons and surgical specialties which are designated as constituent societies, and "C," surgeons of prominence not included in class "A" and not affiliated with the societies represented in class "B." Section "D" is to include all other candidates, namely, all recent graduates who wish to practice surgery as a specialty, or men in the practice of medicine who are desirous of developing a surgical specialty. The first three classes will be subject to consideration during the next six months and their names will be submitted to careful scrutiny. No man will come before the Board of Regents for final election to fellowship until the applicant has made a formal statement in writing of his desire to become a member. Surgeons of classes "A," "B" and "C" will receive notice that they are eligible and on request will be sent application blanks. Surgeons who come under class "D" will be furnished blanks by the secretary, on which they may make application for membership. When a surgeon's original application has been passed favorably by the committee on credentials, he will be sent a fellowship blank on which he may make his declaration of acceptance of the principles of the college, together with such other data and information as the board may require as a matter of regard. He will then be duly elected a fellow of the College of Surgeons of America.

FOREIGN

Other Deaths Abroad.—In addition to deaths reported by our correspondents, the following deaths are noted: Francis Gotch, M.R.C.S., England, Waynflete professor of physiology since 1895 and fellow of Magdalen College, Oxford; Holt professor of physiology in the University College, Liverpool, in 1891; who delivered the Croonian lecture on researches made with Sir Victor Horsley on the central nervous system regarding the method of electrical changes in nerve fibers, in 1891; author of several articles in the *Journal of Physiology;* died in London, aged 60.——J. Thiriar, former professor of surgery at Brussels and one of the leading surgeons of Belgium, recently died suddenly.——Karl Basch of Prague, known for his research on the secretion of milk and physiology of the thymus, aged 54.——C. M. Figueira, long professor of clinical medicine at Lisbon and a leader in keeping Portugal abreast with the progress of science, aged 84. Figueira was one of the first to describe aspergillosis——The second woman to obtain a medical degree in Switzerland, Caroline Farner, also has just died, at the age of 71. She had a large practice in Zurich and was one of the leaders in the woman movement in Switzerland, was instrumental in founding a free sanatorium for women and had charge of it for sixteen years. At 70 she took her last postgraduate course. Necropsy disclosed miliary tuberculosis and also complete tuberculous destruction of the left kidney which dated from a sickness fifty years before.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 12, 1913.

The International Medical Congress

THE SECTION OF THE HISTORY OF MEDICINE

The Section of the History of Medicine will be held at the Royal College of Physicians under the presidency of Dr. Norman Moore. Although this is the first international medical congress at which a section has been specially devoted to this subject, abundant testimony of the interest which it has excited is shown by the large number of contributions promised from the British Empire, the European continent and America. There will be exhibits of early medical books, manuscripts and other objects of medical interest. This section has also organized, with Mr. H. S. Wellcome, the important historical medical museum described in my last letter. The authorities of the British Museum have made arrangements for an exhibition of early medical books, coins and medals of medical interest.

THE MEDICAL MUSEUM

This important museum, which forms an intrinsic part of the congress, must not be confounded with the Museum of the History of Medicine referred to above. The chairman is Professor A. Keith, curator of the Museum of the Royal College of Surgeons. The museum will be arranged in divisions corresponding to the sections of the congress. Any specimen which is to be used at the various sections of the congress, or which illustrates any new medical discovery or observation, will be welcomed. No exhibit of a commercial nature will be accepted. Ample accommodation will be provided for formal and informal demonstrations in the museum. Thus exhibitors may show their specimens both there and in the sectional meetings of the congress. Many interesting exhibits are already promised. There will be a full representation of the progress of our knowledge relating to the early stages in the development of the human ovum. Mr. James Berry will exhibit a complete exemplification of the forms of aneurysms. Tumors of the pituitary, the breast and nipple, orthopedic methods and hemorrhage at the placental site, are only a few instances of special series which are being arranged. Radiology will occupy a prominent position. A special section of the museum, organized under the auspices of the International Association of Medical Museums, will illustrate recent improvements in the methods of preserving and exhibiting specimens.

The National Insurance Act

The first completed report on the working of the national insurance act forms a volume of 660 pages. It includes an account of the formation of an insurance fund of nearly $100,000,000, the insuring of nearly fourteen million persons, the constitution and work of 236 insurance committees, and the making of regulation and special orders to meet unusual cases. During the first four months after the act came into force (July 15, 1912), 2,865 applicants received the sanatorium benefit for tuberculosis in residential institutions, 507 in tuberculosis dispensaries, and 891 at home. By April 30, 1913, the number in residential institutions had increased to 7,464, those treated in dispensaries to 2,167, and those treated at home to 4,993. At present there are in England over two hundred residential institutions which have accommodation for eight thousand cases. The medical benefit agreements with physicians were first entered into for a period of only three months. It is claimed to be significant as an indication of the general attitude of the profession that on the expiration of this period the agreements were renewed by practically all the physicians. On January 15, 17,796 physicians were on the panels; on April 14, the number was 18,584, which forms between 80 and 90 per cent. of those engaged in industrial practice.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 4, 1913.

Compulsory Reporting of Tuberculosis

The Académie de médecine recently adopted the amendment presented by Dr. Roux, which recommends that the report shall be made to a physician in the Public Health Service, who will treat it as a professional secret and who will attend to the carrying out of prophylactic precautions when these are not guaranteed by the attending physician. The report recommends also that it be made incumbent on the Public Health Service to provide for indigent tuberculous patients the cure that their condition demands, and also to give assistance to their families.

The academy then adopted the additional proposal made by Professor Urdal as follows: In the construction of any new hospital on French territory isolated quarters shall be provided for patients affected with open tuberculosis in proportion to the number of the population that the institution is to serve.

Aviation and First Aid to the Injured

Search for the wounded on large battlefields is perhaps the most arduous of the many tasks imposed on the hospital corps. It is therefore important to increase the tools in the hands of this service for carrying out the search. The systematic use of ambulance drays in the hospital corps has already been adopted (THE JOURNAL, Aug. 26, 1911, p. 751, and Jan. 25, 1913, p. 299). Now the aeroplane is going to offer its valuable assistance in this work. Dr. Emile Reymond, senator from the Loire, who is very much interested in aviation, experimented during the last great aviation meet with a view to determining what aid air-ships could furnish in this direction, and he has just communicated to his colleagues of the reserve corps and the territorial army the results of his investigation, and the experiments which he thinks are justified by them. He says the wounded can be found without any great difficulty, especially if the injured man, hearing the sound of the motor, will wave some object which will attract the attention of the aviator. A biplane is to be preferred because from it the field can be surveyed more easily. The aeroplane of the army corps will be most effective if stationed near the staff headquarters and consequently near the director of the hospital corps, who will have automobile

at his disposal. The aeroplane will be an excellent means of communication between the troops in the field and the hospital corps, during the battle as well as after it. With its help, we shall never again see, as we did in the Balkan War, the wounded lying for several days without any help, several miles from a hospital station. It can even, if necessary, carry considerable quantities of supplies to a given point, thus establishing connections between groups of wounded and headquarters, or between the latter and the base of supplies. In short the ambulance air-ship would seem to be absolutely necessary in future warfare.

Death of Professors Motais and Thiriar

Dr. Ernest Motais, professor of the ophthalmological clinic of the École de Médecine d'Angers, national representative of the Académie de Médecine since 1901, has just died in Paris as the result of an operation.

The death is announced of Dr. Julius Thiriar, former professor of the surgical clinic of the Faculté de médecine de Bruxelles.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, June 28, 1913.

Personal

Professor Sauerbruch of Zurich has declined the call to Halle.

Some unofficial transactions are now in progress with reference to the call of Professor His, director of our first medical clinic, to Vienna as the successor of von Noorden. Whether or not they will succeed in their purpose is uncertain. It is not my impression that the departure of His from Berlin would cause very much distress either to him or to the Berlin physicians; he has not been able to get the right footing here.

Professor Kruse of Bern has received a call as successor of Professor Hofmann to the chair of hygiene at Leipsic and he will probably accept it.

On June 17 the former general staff surgeon of the Bavarian army, Dr. von Vogl, died at the age of 79. He had performed an important service in the organization of the Bavarian military health service. He retired in 1900.

According to the *Kölnische Zeitung*, Dr. Friedmann has returned to Germany. The news will certainly not be received by his German colleagues with any special satisfaction. With all our altruistic tendency and with the best wishes toward America and its physicians, we would not have been greatly distressed if Dr. Friedmann had taken up a permanent residence with you. At any rate, it will be interesting to learn how Dr. Friedmann will conduct himself with reference to the injury which his reputation has received on both sides of the Atlantic.

Conviction of Antivaccinationist Physicians

As I informed you a long time ago, two antivaccination physicians—Dr. Spohr and Dr. Bachen of Frankfort-on-the-Main—were tried, Dr. Spohr because he did not notify the authorities of his own illness with small-pox and the cases in his family and practice, and Dr. Bachen because he did not report cases of small-pox occurring among his clients. The trial was held June 20 and ended with the conviction of both physicians and a fine of 875 (300 marks) each. The district attorney asked for a sentence of imprisonment on account of criminal carelessness and manslaughter from negligence (one woman with small-pox died). It is notable that in the trial Sticker of Bonn appeared as an expert on the side of the accused. Sticker affirmed that man is not always to be regarded as the only transmitter of the small-pox virus but that the air also plays a great rôle in the spread of small-pox.

The Rudolf Virchow Building

The difficulties in the way of the erection of the Rudolf Virchow-Haus planned by the Berlin Medical Society, which I have repeatedly mentioned, seem at length to have been completely removed. The city autnorities of Berlin are discussing with the city council a grant to the medical society of an appropriation to the amount of $250,000 (1,000,000 marks) for its building and at the same time the sum of $2,500 (10,000 marks) yearly for five years. The condition of this very creditable resolution is that the building shall serve to honor Rudolf Virchow, the esteemed citizen of Berlin, and that the auditorium of the building shall be open to the public for general purposes such as lectures of the central commission of the Krankenkassen. The city council agreed to the proposal and principle, but appointed a committee to consider the details, as the financial relations will need to be thoroughly settled.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 5, 1913.

Professor von Noorden's Farewell Lecture in Vienna

A few days ago, Professor von Noorden in a splendid lecture, bade goodbye to his pupils and assistants in his Vienna clinic, which once more caused us to feel with deep regret his decision to leave this city. Aside from the purely medical part of his speech, the greatest attention centered around that which he said about the reasons for his "flight," as he termed it, from Vienna. It is generally believed that Professor von Noorden had met opposition on the part of his colleagues in the senate of the Vienna University, and that he did not feel quite at home here for these reasons. But one of the chief reasons of his departure was the laxity, not to say negligence, of the government in fulfilling the promises given him when he was asked to accept the office. Only with great difficulty had he been able to get his new clinic made ready for his use, and this institute had become so great and so much frequented by students and doctors that the work had outgrown his powers. He felt the desire to be his own master, and he returned to Frankfort because he wanted to spare his energy and his mental forces for research, and no longer wanted to perform the duties of a clinical teacher and official instructor. The professor then enumerated the scientific achievements and works originating from his Vienna clinic within the last four years, there being more than three hundred important contributions to the pathology of metabolism, circulation and hematology. Among the greatest may be mentioned pathology and therapy of diabetes, chemical microscopy of the blood, a handbook of diseases of the heart, the respiratory conditions in diabetes and the use of radium and mesothorium in various diseases, as well as investigations on a new reaction in syphilitic serum, especially cultivated within the past few months. His loss is a severe blow to the University of Vienna. He was a great organizer, and founded a real school of metabolism research here, which caused students from all the world to flock to Vienna, where the model metabolism kitchen in his clinic, was a prominent feature. Although some doctors did not approve of his methods regarding the financial side of a consulting practice—he was and is a clever business man—the authority of von Noorden here was always undisputed.

Attempts are being made to prevent an interruption of the course of teaching as instituted by von Noorden, and a large section of the profession would prefer to see another "metabolism" man as his successor. There are not many, however, who could fulfil the requirements for this post, and the negotiations with professors in Germany (Schmidt and Krehl) have been unsuccessful. Lately Professor His (Berlin) has been invited to come to Vienna, but as yet his decision is unknown.

Marriages

AMZI BEDELL SHOEMAKER, M.D., North Attleboro, Mass., to Miss Bessie Adele Wheaton of New York City, in Providence, R. I., June 2.

OTTO EARLE LONGACRE, M.D., Loup City, Neb., to Miss Katherine Tucker of New Canaan, Conn., in New York City, June 19.

WILLIAM HAMILTON LONG, M.D., Louisville, Ky., to Miss Ella J. Zinsmeister of New Albany, Ind., July 10.

FRANK RAPHAEL STRONG, M.D., to Miss Grace E. Kilmer, both of Brewerton, N. Y., in New Jersey, recently.

LORIMER JENNINGS MOORFIELD, M.D., High Point, N. C., to Miss Ruth Boyd of Charlotte, N. C., July 7.

MILLARD HOLLOWAY IRWIN, M.D., Nokomis, Ill., to Miss Harriet Tucker of Evansville, Ind., June 28.

R. SIDNEY CAUTHEN, M.D., Charlotte, N. C., to Miss Cynthia Emily Sessions of Cuthbert, Ga., July 9.

WAYNE PERSON HANSON, M.D., Los Angeles, Cal., to Miss Nellie C. Snider of Philadelphia, July 23.

FRANK LEE STONE, M.D., Beaver Crossing, Neb., to Miss Leone M. Gilbert of Chicago, June 30.

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CHARLES GRANT EICHER, M.D., to Miss Nannie Tannehill, both of McKees Rocks, Pa., June 28.

CHARLES E. BINGAMAN, M.D., Pottsville, Pa., to Miss Florence Beard of Birdsboro, Pa., July 2.

IVAN ISAAC YODER, M.D., Cleveland, Ohio, to Miss Bertha May Zigler of Seville, Ohio, July 10.

DEMPSEY ORVILLE SHEPPARD, M.D., Barnesville, Ohio, to Miss Sarah Fees of Pittsburgh, June 26.

CLAUDE C. SMINK, M.D., Lauraville, Md., to Miss Lillian Long at Westover, Md., June 30.

ERVIN TOROK, M.D., New York City, to Miss Louise Bentley Felter of Brooklyn, July 1.

JOHN N. GASTON, M.D., to Mrs. Rosa B. Hoke, both of Edgemoor, S. C., July 3.

Deaths

Ralph S. Lavenson, M.D. University of Pennsylvania, Philadelphia, 1902; a fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania and Medical Society of the State of California; formerly assistant medical director of the Philadelphia General Hospital; assistant demonstrator of pathology in his alma mater; associate in medicine in the William Pepper Laboratory of Clinical Medicine; died at his home in Los Angeles, July 6, from tuberculosis, aged 36.

William Taussig, M.D. St. Louis University, 1851; LL.D., Washington University, 1905; a pioneer practitioner of St. Louis; mayor of Carondelet in 1852; a member of the St. Louis County Court from 1859 to 1865 and its presiding judge for the last two years of this time; director and general manager of the St. Louis (Eads) Bridge Company from 1867 to 1896; a member of the St. Louis Board of Education from 1909 to 1911; died at his home, July 10, from pneumonia, aged 87.

Ferdinand N. Sauer, Jr., M.D. College of Physicians and Surgeons, Baltimore, 1901; formerly a member of the American Medical Association; a member of the Medical Society of New Jersey; medical examiner for the New Jersey Civil Service Commission; a pioneer in the establishment of pasteurized milk depots in Jersey City, while chief inspector of the Jersey City Board of Health; died at his home in Jersey City, June 8, from heart disease, aged 39.

Clark Ingersoll Wertenbaker, M.D. Georgetown University, Washington, D. C., 1894; first lieutenant M. R. C., U. S. A.; captain and assistant surgeon, U. S. V., from 1901 to 1903, with service in Cuba, the Philippine Islands and Alaska; a member of the Association of Military Surgeons of the United States; died at his home in Washington, D. C., July 6, from heart disease, aged 40.

Thomas Griffin Ford, M.D. Bellevue Hospital Medical College, 1870; a member of the Louisiana State Medical Association; from 1878 to 1888 surgeon in charge of the Charity Hospital and later a member of the board of administration and for twelve years a member of the Shreveport city council; for more than thirty years a practitioner of Shreveport; died in Hot Springs, Ark., where he was attending a patient, July 7, aged 64.

Frank H. Boynton, M.D. New York Homeopathic Medical College, New York City, 1874; professor of clinical ophthalmology and president of the New York College and Hospital for Women; senior surgeon of the New York Ophthalmic Hospital; died at his summer home, Mount Washington, Mass., July 3, from heart disease, aged 53.

Alexander Gunn, M.D. University of Michigan, Ann Arbor, 1864; a member and president of the Northeastern Medical Association; for several years health officer of Lenox township and health officer, member of the school board and president of the village of New Haven, Mich.; died at his home July 6, from senile debility, aged 80.

Harry Stillman Wilcox Spencer, M.D. Rush Medical College, 1908; a fellow of the American Medical Association and once secretary of the Kankakee Medical Society; was drowned while fishing in the Kankakee River, July 17, aged 33.

Charles O. McCune, M.D. College of Physicians and Surgeons, Baltimore, 1879; a member of the Ohio State Medical Association; of Unionville Center; died in Mount Carmel Hospital, Columbus, July 5, from heart disease, aged 66.

Albert W. Killgore, M.D. Medical College of Indiana, Indianapolis, 1882; a member of the Colorado State Medical Society; died at his home in Fort Collins, Colo., June 23, from myocarditis, aged 57. At a special meeting of the Larimer County Medical Society, June 26, resolutions of respect and sympathy were unanimously adopted.

Warren Nichols Horton, M.D. Washington University, St. Louis, 1903; professor of genito-urinary diseases in the College of Physicians and Surgeons, Los Angeles, Cal.; formerly city bacteriologist of Los Angeles; died in the Angelus Hospital in that city, July 5, two days after an operation for appendicitis, aged 32.

Henry Furness, M.D. New York University, New York City, 1875; president of the Malone (N. Y.) Society for the Prevention of Cruelty to Animals; vice-president of the Alice Hyde Memorial Hospital, and consulting physician to the Sanitarium Gabriels; died at his home in Malone, July 5, aged 63.

Frank Mero Wiles, M.D. Medical College of Indiana, Indianapolis, 1883; a fellow of the American Medical Association; for twenty-three years a member of the staff of the Central Indiana Hospital for the Insane, Indianapolis; died in St. Vincent's Hospital in that city, July 7, from nephritis, aged 56.

Eliet Orrin Sisson, M.D. Keokuk (Ia.) Medical College, 1892; a member of the American Academy of Ophthalmology and Otolaryngology; formerly professor of dietetics and histology and director of the histologic laboratory in his alma mater; died at his home in Denver, July 4, from tuberculosis, aged 42.

William Frederick A. Kemp, M.D. University of Maryland, 1872; formerly vice-president and for fifteen years treasurer of the Medical and Chirurgical Faculty of Maryland, and president of the Baltimore Medical Association; died at his home in Baltimore, July 10, aged 64.

George Warren Jones, M.D. Harvard Medical School, 1872; formerly surgeon to the Soldiers' Home in Massachusetts, Chelsea, and president of the Boston Gynecological Society; died in the Massachusetts General Hospital, June 5, from cerebral hemorrhage, aged 64.

George T. Kimball, M.D. University of Pennsylvania, Philadelphia, 1881; formerly a member of the American Medical Association and a charter member of the Kenosha County Medical Society; died in a drugstore in Kenosha, July 10, from cerebral hemorrhage, aged 54.

Robert David Scott, M.D. College of Physicians and Surgeons, Chicago, 1900; health editor of the South Bend (Ind.) *News Times;* formerly lecturer in neurology in his alma mater; died at the home of his sister in South Bend, July 11, from cerebral hemorrhage, aged 48.

Jethro G. Bohannon, M.D. University of Louisville, Ky., 1874; a member of the Kentucky State Medical Association; for many years a member of the Muhlenberg County Board of Health; died at his home in Greenville, July 4, from cerebral hemorrhage, aged 60.

James Franklin Cravens, M.D. Rush Medical College, 1857; a practitioner of Chicago from 1860 to 1898, when he moved to Spirit Lake, Iowa, to become president of the First National Bank of that place; died at the home of his niece in Chicago, July 20, aged 78.

Ralph Henry Kinney, M.D. Rush Medical College, 1904; a fellow of the American Medical Association; of Lancaster, Wis.; aged 33; was drowned in the Mississippi River near Cassville, Wis., June 27, while attempting to save three women from drowning.

Frank Maitland Madison, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1884; formerly of Chicago; believed to have been of unsound mind and a pyromaniac, who is said to have confessed arson; hung himself in the San Diego city jail, July 9.

Lewis T. Smith, M.D. Jefferson Medical College, 1876; a member of the medical Society of the State of Pennsylvania; president of the Citizens' Telephone Company of Trauger, Pa.; died at the home of his daughter in Johnstown, Pa., June 28, aged 66.

Lewis H. Skaggs, M.D. Rush Medical College, 1863; surgeon of the Ninety-Fourth Illinois Volunteer Infantry throughout the Civil War; and for half a century a member of the Illinois State Medical Society; died at his home in Leroy, July 10, aged 78.

John S. Pitts, M.D. University of Nashville, Tenn., 1861; assistant surgeon of Wheeler's Cavalry and of the Fifty-First Alabama Infantry, C. S. A., during the Civil War; died at his home in Verbena, Ala., June 25, aged 81.

Clinton Hastings Catherwood, M.D. Dartmouth Medical School, 1896; formerly of New York City; one of the founders of the Colorado Kennel Club and an ardent worker in the Colorado Humane Society; died at his home in Denver, July 1, from tuberculosis, aged 41.

Charles S. Penfield, M.D. Hahnemann Medical College, Chicago, 1880; a member of the Washington State Medical Association; died at his rooms in the Willard Hotel, Spokane, July 7, from cerebral hemorrhage, aged 55.

Leland H. Munger, M.D. Missouri Medical College, St. Louis, 1879; a fellow of the American Medical Association; one of the leading practitioners of Winona County, Minn.; died at his home in Winona, July 9, aged 56.

Henry H. Caldwell, M.D. University of California, San Francisco, 1890; a practitioner of Indiana for more than fifty years; was found dead in his apartments in that city, July 5, from heat exhaustion, aged 80.

Marion Oliver, M.D. Queens University, Kingston, Ont., 1884; a missionary of the Presbyterian Board at Indore, Central India, from 1886 to 1911; died at her home near St. Mary's, Ont., May 22, aged 55.

Charles C. Sater, M.D. Miami Medical College, Cincinnati, 1872; died at his home in Atlanta, Ill., June 25, from the effects of a wound received during the Civil War, aged 73.

Joseph Merton Bunting, M.D. Baltimore Medical College, 1909; a member of the Medical Society of the State of New York; died recently at his home in Kingston, aged 28.

Edmond M. Cowart, M.D. Hospital College of Medicine, Louisville, 1897; of Bond, Miss.; died June 27, as the result of skull fracture received in a fight the day before.

Isaac C. West, M.D. Hahnemann Medical College, Chicago, 1889; one of the oldest practitioners of Dallas, Tex.; died at his home, June 30, from heart disease, aged 70.

Stanley Emanuele Tron, M.D. Harvard Medical School, 1910; died at his home in Utica, N. Y., June 22, it is believed from the effect of poison self-administered, aged 29.

Bailey Peyton Key, M.D. University of Nashville, 1874; a Confederate veteran; died at his home in Tracy City, Tenn., June 28, from pneumonia, aged 63.

James B. Neff, M.D. College of Physicians and Surgeons, of Ontario, Toronto, 1878; died at his home in Port Colborne, Ont., about June 29, aged 73.

Adna Leonard Innes, M.D. Pulte Medical College, Cincinnati, 1904; of Cleveland; died at the home of his sister in Clinton, Cincinnati, July 4, aged 35.

William Riley Lewis, M.D. University of Iowa, Iowa City, 1878; died at his home in Los Angeles, May 17, from progressive paralysis, aged 61.

Reuben F. Corlett, M.D. Detroit College of Medicine, 1893; of Birch Run, Mich.; died in Saginaw about July 9, from peritonitis, aged 48.

Charles Beaney Humiston, M.D. University of Michigan, Ann Arbor, 1874; died at his home in North Dover, Ohio, June 27, aged 62.

Solomon T. Metty (license, Kansas, 1901); for more than half a century a practitioner of Topeka; died at his home, June 30, aged 76.

James Samuel W. Williams, M.D. University of Victoria College, Coburg, Ont., 1867; died at his home in Oakville, Ont., June 4, aged 72.

John G. Weber, M.D. University of Jena, Austria, 1865; for many years a resident of New York City; died at his home, July 2, aged 70.

Isaac P. Lamb, M.D. Homeopathic Medical College of Missouri, St. Louis, 1883; died at his home in Houston, Tex., July 1, aged 67.

Harry Ezekiel Morrison, M.D. Vanderbilt University, Nashville, Tenn., 1900; died at his home in Medford, Ore., recently, aged 36.

James Myers, M.D. Joplin (Mo.) College of Physicians and Surgeons, 1882; died at his home in Greensburg, Mo., June 20, aged 65.

William Jonathan Cain, M.D. Jefferson Medical College, 1910; died at his home in Pittsburgh, June 28, aged 27.

J. B. Neal (license, Arkansas, 1903); for several years postmaster of McCrory; died June 24, aged 71.

W. P. Snyder (license, Oklahoma, 1908); of Alex; died recently in Bailey, Okla., aged 52.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE NULIFE FRAUD

Truax, Greene & Company Give Helpful Hints to Busy Doctors

Physicians in Chicago, and doubtless elsewhere over the country, have within the last few days been favored with an illustrated price list entitled "The Greeneway," sent out by Truax, Greene & Co., Chicago. This, we would emphasize, is written for and addressed to physicians—members of a supposedly learned profession.

Two and one-half pages of this sixteen-page brochure are devoted to the exploitation of "Prof. Charles Munter's Nulife Shoulder Braces and Supporters." The information given in these pages will interest a profession that is always seeking light on scientific subjects. Nulife, physicians are told, "makes the weak strong and happy, the strong impervious to common ills." Those who wear Nulife "cannot possibly become sick or overheated." Furthermore, we learn, "the human body represents the most perfect system of circulation and ventilation ever created," but unfortunately this system of ventilation and circulation is frequently impaired by careless individuals who allow their "shoulders to droop downward," which results, according to Truax, Greene & Co., in "congealing the intestines."

Nulife, it is claimed, supports the spine, and physicians are informed that the spine "is composed of small pieces of bone set one above the other." Switching from anatomy to pathology, the medical profession is further told that "the least extra pressure on these individual pieces of the spine sometimes causes paralysis in different parts of the body. This generally starts from round shoulders which Nulife prevents." Round shoulders as an etiologic factor in paralysis may come as a helpful hint to those medical men who have cases of this kind under observation.

But this is by no means the limitations of Nulife. It also "prevents pressure on the stomach and the internal organs of the stomach, freeing them so that they do not crowd and interfere with each other." As it is highly desirable that the "internal organs of the stomach" should not "crowd and interfere with each other" Nulife will come as a boon and a blessing. It is evident, after reading Truax, Greene & Co.'s dissertation, that the medical profession has never been fully alive to the dangers of "sagging shoulders." As soon as the shoulders sag they "close or clog the breathing tubes with the foul and heated gases of the stomach" with the dire result that these "heated gases" "burn away the mucous membrane causing the tubes to stick together and interrupt the air circulation in the body."

Finally those physicians who have among their patients some more or less intractable cases will be thankful for the information that "Nulife immediately relieves any case of catarrh, bronchitis, asthma or indigestion no matter how chronic nor how long standing." And those who are treating pulmonary tuberculosis may read with amazement that when Nulife is used "lung trouble also disappears as the lung cells fill with air and start to vibrate into life."

Summed up, it seems that Truax, Greene & Co. serves up to the medical profession of the United States a mess of unscientific trash, of false and fraudulent statements and of lying claims for which even the advertising copy-writers for Lydia Pinkham, Peruna or Munyon would be ashamed to stand sponsor. We could, if it seemed worth while, discuss the nostrums of the "ethical proprietary" type also advertised in the Truax, Greene's catalogue. But it is not worth while. It is sufficient to say that a company which thinks that it can appeal to the medical profession with advertising methods that have been abandoned even by the "patent medicine" fakers, is out of joint with the spirit of the times.

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ENESOL

An Arsenic and Mercury Preparation of Uncertain Composition

The following letter was received from Dr. E. O. Smith, Marquette, Kansas:

"Under separate cover, I mail you a sealed tube of 'Enesol' which I should be pleased to have analyzed in the Association's laboratory and reported on. As you will note, Enesol is of foreign manufacture. Its formula is not given in the literature accompanying it. Enesol is being used by intramuscular injection in a severe case of diabetes mellitus by a physician in one of the large cities. The patient, formerly under my care, is making regular trips to the city over 200 miles away to receive these injections under the impression that they will cure his diabetes. The physician giving the injections informed the patient that each sealed tube, the contents of which constituted a single dose, contained three grains of arsenic.

"I expressed doubt to the patient about the amount of arsenic being injected and, on a recent visit to the city, he told his city physician of my skepticism so his physician enlightened me by sending me the sealed tube which I am mailing THE JOURNAL. He also sent me a letter stating that each tube contained 3 grains of arsenic and ¼ grain of mercury bichlorid in solution. In view of the fact that a half grain of arsenic has been known to produce poisonous symptoms and three grains have been known to prove fatal, I am still skeptical.

"Will intramuscular injections of arsenic and mercury bichlorid in any amount have any specific effect on the sugar output in diabetes mellitus? If so, how?"

The Council on Pharmacy and Chemistry had Enesol under consideration some time ago. The manufacturer did not give exact information regarding the composition of his remedy. While he stated that it was a salicyl arsinate of mercury, a molecular combination of monomethyl arsinic acid and a double salicylate of mercury and sodium, he failed to give a formula by which the composition of the substance could be determined. The Council voted to reject the product because (1) the origin and exact composition of Enesol was not given, (2) the manufacturer had made misstatements regarding the identity of the preparation and (3) there was a discrepancy between the composition as advertised and that found by analysis.

A specimen of Enesol submitted by the manufacturer was examined in the Association's laboratory and found to contain about 20 per cent. arsenic, instead of 14.4 per cent. as claimed, and less than 16 per cent. of mercury, instead of 38.46 per cent. as claimed. The Enesol circular states that the preparation comes in bulbs of 2 c.c. capacity containing 3 cg. to each cubic centimeter. According to this, there would be about 6 cg. (1 grain) of Enesol in each bulb. If the manufacturer's claim could be accepted this would mean that the contents of each bulb would contain the equivalent of 1/1 grain of arsenic or about ¼ grain of arsenous oxid.

It is possible that arsenic in the form in which it occurs in Enesol is not as toxic as ordinary arsenic so that the dosage given might be tolerated by the organism under normal conditions. Accidents, however, occur in the giving of such products because of some abnormal decomposition in the system. Thus atoxyl, so named from its supposed lack of poisonous properties, is ordinarily borne in doses containing a considerable amount of arsenic; in other cases, however, it undergoes some change in the system by which poisonous effects are produced. Similar accidents have happened in the administration of salvarsan; consequently when one undertakes the use of a remedy containing an unknown but dangerous quantity of arsenic, he is running the risk of possible accident which may cause serious injury or be fatal to his patient. This is the first objection to the use of an uncertain and untrustworthy preparation like Enesol. The second objection is the attempt to extend its use to the treatment of diseases in which the administration of arsenic has not been justified by experience.

Arsenic is doubtless useful in certain forms of skin disease, but this is no justification for the indiscriminate use of a dangerous preparation in diseases of the skin. It is true, too, that the claim has been made that arsenic is of service in diabetes, but positive clinical proof of this assertion is wanting, and, in the present state of our knowledge, the use of arsenic in diabetes must be regarded as more or less of an experiment.

The physician may properly experiment with the well-known and manageable preparations of arsenic. If signs of overdose appear the suspension of the remedy is sufficient to enable the system to rid itself of the small quantity ingested. When, however, one administers a possibly fatal dose of arsenic to secure the doubtful benefit of arsenic in diabetes, he is making an inexcusably dangerous experiment.

Further, in giving Enesol one is not only giving arsenic, but also a large dose of mercury. Mercury, so far as we know, has never been used for the treatment of diabetes. The use of Enesol is therefore unwarranted, because forms of arsenic are available which do not contain the added poison, mercury. We have been able to find no recommendation by recognized authorities of the use of mercury and arsenic by intramuscular injections in diabetes.

THE "STRONG-ARM" METHODS OF THE ADVERTISING QUACK

How Emil William Nelson Was Swindled by "Dr. Cook & Co."

The history of the swindling of Emil William Nelson, an Alaskan miner, out of more than $2,000 by "Dr. Cook & Co." a medical corporation of Seattle, is an example of the "strong-arm" methods sometimes employed by medical pretenders in stripping their victims of their money. The ordinary highwayman takes only money; that is, if his victim obediently throws up his hands; but these medical highwaymen not only took practically all of Nelson's money (and he surely threw up his hands), but subjected him to alleged treatments as well which may have been no less dangerous to life than the more brutal onslaught of the robber on the public road.

The legal records in the case give a graphic description of the manner in which Nelson was swindled, and incidentally contain an interesting ruling of the court that a corporation does not and can not have a license to practice medicine, and any moneys paid to it for treatment of a patient are paid without a consideration and contrary to public policy.

The chief persons interested in "Dr. Cook & Co." were C. K. Holsman and H. J. Jiles, who own and run a number of medical institutions or offices in Pacific Coast cities. It is alleged in the complaint of Nelson that Holsman as president and manager for "Dr. Cook & Co." received the patients induced to come to the office by their advertisements in the daily papers, "sized up" their financial ability, discovered the amount of cash they had on hand or in bank, as nearly as he could, and fixed the charges to be made to said patients in proportion to their financial ability and in proportion to the false diagnoses made by the alleged doctors of the company, who, of course, made the patients believe themselves much more seriously ill than they really were.

The complaint then recites that Nelson, a Swede, accustomed to believe the statements made by the newspapers and in print, was induced to apply to "Dr. Cook & Co." for treatment of a slight ailment then affecting him; there was, it is said, in fact nothing much the matter with him, but when he applied to "Dr. Cook & Co." he was received by Holsman, turned over to an alleged doctor in the office, and for about a month and a half thereafter induced to take treatments for which he paid "Dr. Cook & Co." $550 in cash. Later Holsman represented to Nelson that he would need an electrical battery for treating himself, which "Dr. Cook & Co." would supply for $160; this Nelson paid for by check on a bank. As a result of this, it is alleged, Holsman through his agents and servants was enabled to find out that Nelson had about $3,000 in the bank on which he drew the check. They then, according to the complaint, set about "fraudulently, unlawfully and wrongfully" to get possession of this sum, and "pursuant to such conspiracy to thus cheat and defraud plaintiff and get his money from him for nothing."

C. K. Holsman induced Nelson to have a consultation with an "eminent practitioner" from the East, then in Seattle. This was said to be H. J. Jiles, also connected with "Dr. Cook & Co." and with the other enterprises in which Holsman is interested. He told Nelson that he was afflicted with some very serious ailment, that unless an operation was performed he would certainly die, and that no one except this "eminent practitioner" could perform the operation that would save his life. He explained that this was a very expensive operation to perform, and that it would cost the plaintiff the sum of $1,525. Nelson drew his check for this sum and paid it over to "Dr. Cook & Co." for the alleged operation. It is then stated in the complaint that the next day Nelson was taken to the operating room and placed on the operating-table in the presence of the alleged "eminent practitioner" in the service of "Dr. Cook & Co.," and, after an injection of some kind which deprived him of his senses and capacity to understand or act intelligently, he was held up in the arms of one of the agents of the defendant, Dr. Cook & Co., his check book was placed in his hands by another, and he was induced to sign a check on the Washington Trust & Savings Bank for the sum of $762.50, payable "to cash." This check was later cashed by "Dr. Cook & Co.," and the proceeds received by the company.

For all the money obtained by these outrageous methods, the complaint alleges that no operation of magnitude and no treatment of any account was performed or administered to Nelson. It is said that Nelson "was so overcome, hypnotized, weakened and distressed, that he was incapable of transacting any business at all and was completely under the influence and domination of Holsman and his agents." The complaint characterizes the corporation as "a fraudulent concern" and its agents, servants and so-called doctors and physicians as "quacks, charlatans, frauds, and cheats."

"Dr. Cook & Co.," in its answer to the complaint, denied everything except that it was a corporation in which Holsman was interested, but alleged the concern had given Nelson a large number of treatments and had performed two operations. Judgment was given against the defendants for $2,287.50, although Nelson had paid them practically $3,000. The office of "Dr. Cook & Co." was sold out and Nelson recovered a part of his money.

The details by which Nelson was swindled out of this large sum constitute an extreme case, perhaps, but it illustrates the lengths to which such medical schemers will go in their wretched business.

Correspondence

The Treatment of Narcotic Addiction

To the Editor:—As I am interested in the treatment of morphin or opium and alcohol addictions, I read the article by Dr. Alexander Lambert in THE JOURNAL, June 21, 1913, p. 1933, with much interest. Belladonna and scopolamin have been given for years in many drug habit institutions, apparently for the purpose of bringing the patient into a state of delirium to facilitate the abrupt discontinuance of the drug. I think that this kind of treatment should be discarded on account of the bad after-effects of these poisons, especially when administered to psychasthenic patients when their mind is in a weak, deteriorated and morbid condition.

I never undertake the treatment of a case of alcoholic addiction unless the patient can be under my supervision for at least two weeks, and in the case of morphin or opium, from four to six weeks at least is demanded. I have never seen the necessity of giving a patient who has taken from 30 to 60 grains of morphin daily, more than from 2 to 5 grains hypodermically to begin with, and this amount is slowly reduced.

The main thing in treating drug-fiends is first to get full control of them by gaining their confidence and to have a reliable nurse to handle them, and secondly to bring about thorough elimination of the poisons and the faulty metabolic products. The recommendation of the "blue mass combination" is good, but for thorough elimination I find nothing of more value than a full sweat-pack after a good cathartic. Pilocarpin may be used in combination with these if necessary, and the treatment repeated every second day. The skin of the drug-fiend is dry (leather-like), and the effect of the pack is surprising in opening the pores and also in relieving the neurotic pains frequently present. I advise the patient to stay in bed for at least two weeks without any exertion or exercise.

M. LOEWENTHAL, M.D., Cleveland.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INTERNAL SECRETION

To the Editor:—Please give references to literature on internal secretions. BURTON J. HENDRICK, New York.

ANSWER.—The following list may be referred to:

Vincent, Swane: Internal Secretions and the Ductless Glands. Longmans, Green & Co., New York, 1912. Price, $3.50.

Bleul, Arthur: The Internal Secretory Organs. William Wood & Co., 1913. Price, $6.

Cohn, F.: Interrelations between Internal Secretions of Mamma and Ovary, *Monatsschr. f. Geburtsh. u. Gynäk.*, January, 1913; abstr., THE JOURNAL, March 1, 1913, p. 706.

Morris, N.: Internal Secretions in Relation to Dermatology, *Brit. Med. Jour.*, May 17, 1913; abstr., THE JOURNAL, June 21, 1913, p. 1982.

Graves, W. P.: Influence of Ovary as Organ of Internal Secretion, *Am. Jour. Obst.*, April, 1913; abstr., THE JOURNAL, April 26, 1913, p. 1324.

Münzer, A.: Emotional Factors in Disease of Organs with an Internal Secretion, *Berl. klin. Wchnschr.*, June 17, 1912; abstr., THE JOURNAL, July 27, 1912, p. 313.

Goldmann, E. E.: External and Internal Secretions Studied by Injecting Stain into Living Animals, *Beitr. z. klin. Chir.*, March, 1912; abstr., THE JOURNAL, April 27, 1912, p. 1319.

Schickele, G.: Thrombosis and Internal Secretion, *München. med. Wchnschr.*, Jan. 23, 1912; abstr., THE JOURNAL, March 2, 1912, p. 672.

Cohn, M., and Peisner, H.: Disturbances in the Internal Secretion with Diseases of the Pancreas, *Deutsch. med. Wchnschr.*, Jan. 11, 1912; abstr., THE JOURNAL, Feb. 17, 1912, p. 552.

Kastle, J. H.: Internal Secretion of Mammae as Factor in Onset of Labor, *Jour. Infect. Dis.*, March, 1912; abstr., THE JOURNAL, April 13, 1912, p. 1150.

Fürst, V.: Glycosuria and Internal Secretions. *Norsk Mag. f. Laegevidensk*, May, 1913.

Schiffmann, F., and Vystavel, A.: Has the Mammary Gland an Internal Secretion? *Wien. klin. Wchnschr.*, Feb. 13, 1913.

Berkeley, W. N.: How Far Have We Got with Clinical Use of Internal Secretions? *Old Dominion Jour. Med. and Surg.*, May, 1913.

Kranz, P.: Influence of Internal Secretions on Dentition, *Beitr. z. klin. Chir.*, November, 1913.

v. Frankl-Hochwart, L.: Influence of Internal Secretion on the Mind, *Med. Klin.*, Dec. 1, 1913.

Barnabo, V.: Experimental Research on the Internal Secretion of the Testicles, *Policlinico*, April 20, 1913.

Rosenthal, A.: The Secretions in Diabetes Insipidus, *Berl. klin. Wchnschr.*, June 24, 1912.

Williams, T. A.: Psychogenesis and Internal Secretions: Experimental Data and Pathogenesis, *Med. Press and Circular*, July 17, 1912.

Bittorf, A.: Cases Demonstrating Disturbances in Internal Secretion, *Berl. klin. Wchnschr.*, June 3, 1912.

Georgopulos, M.: Experimental Research on the Interrelations of the Glands with an Internal Secretion, *Ztschr. f. klin. Med.*, July 20, 1912.

Kintsi: Internal Secretion of the Corpus Luteum, *Monatsschr. f. Geburtsh. u. Gynäk.*, Oct. 20, 1912.

Starr, M. A.: Neuroses Dependent on Errors of Internal Secretion of Ductless Glands, *Med. Rec.*, June 29, 1912.

Waller, B. E.: Relationship of Thyroid to Other Internal Secretions of Sexual Origin, *Practitioner*, August, 1912.

Fleischmann, P.: Interrelation Between Glands with Internal Secretion, *Med. Klin.*, Feb. 4, 1912.

Schwachtgen, G. B.: Internal Secretions with Special Reference to Islets of Langerhans of Pancreas, *Illinois Med. Jour.*, February, 1912.

Chvostek, F.: The Constitution and Glands with an Internal Secretion, *Wien. med. Wchnschr.*, Jan. 4, 1912.

Schittenhelm, A.: Disintegration of Albumin, Anaphylaxis and Internal Secretion, *Deutsch. med. Wchnschr.*, March 14, 1912.

Denison, H. S.: Harmonic Equilibrium of Glands of Internal Secretion, *Colorado Med.*, March, 1912.

Scherbak, A. I.: The Internal Secretion of the Mammary Glands *Wien. med. Wchnschr.*, Feb. 1, 1912.

Opie, E. L.: What is Internal Secretion? *Interstate Med. Jour.*, May, 1912.

Morat, J. P.: The Internal Secretion and the Nervous System. *Lyon Méd.*, Sept. 24, 1911.
Neuburger, M.: Early History of Theory of Internal Secretions. *Wien. med. Wchnschr.*, Sept. 28, 1911.
Williams, L.: Therapeutic Promise of Internal Secretions. *Practitioner*, November, 1911.

ARTICLES ON TREATMENT OF ASTHMA

To the Editor:—Please publish a list of your recent articles on the treatment of asthma.

A. H. STAPLES, M.D., Washington, D. C.

ANSWER.—The following articles may be consulted:

Herrick, W. W.: Eosinophilia of Bronchial Asthma, THE JOURNAL Dec. 2, 1912, p. 1836.
Horn, Henry: The Bronchoscopic Treatment of Bronchial Asthma, THE JOURNAL, Sept. 30, 1910, p. 930.
Meltzer, S. J.: Bronchial Asthma as a Phenomenon of Anaphylaxis, THE JOURNAL, Sept. 17, 1910, p. 1021.
Hall, J. N.: Prolonged use of Epinephrin in Asthma, THE JOURNAL, July 9, 1910 p. 128.
Cohen, S. S.: Pituitary Extracts in Hay-Fever, Asthma, etc., THE JOURNAL, May 28, 1910, p. 1803.
Freudenthal, W.: Further Experience with Endobronchial Therapy of Asthma, THE JOURNAL, Sept. 21, 1912, p. 1108.
Matthews, J.: Relation of Nasal Conditions to Asthma, THE JOURNAL, Sept. 21, 1912, p. 1107.
Stadler, E.: Asthma, *Med. Klinik*, Jan. 26, 1913, abstr., THE JOURNAL, March 8, 1913, p. 791.
Koessler, K. K.: Bronchial Asthma Due to Hypersusceptibility to Hen's Eggs, *Ill. Med. Jour.*, January, 1913, abstr., THE JOURNAL, Feb. 1, 1913, p. 399.
Strasser, C.: Asthma, *Münchn. med. Wchnschr.*, Jan. 21, 1913, abstr., THE JOURNAL, March 1, 1913, p. 706.
Chelmonski, A.: Pathogenesis of Asthma, *Deutsch. Arch f. klin. Med.*, 1912, cv, Nos. 5 and 6, abstr., THE JOURNAL, May 18, 1912, p. 1548.
Bonnier, P.: Light Cauterization of the Nose in Treatment of Asthma, *Arch. gén. de méd.*, March, 1912, abstr., THE JOURNAL, May 4, 1912, p. 1401.
Kayser, C.: Calchua Salts in Treatment of Asthma, *Therap. Monatsh.*, March, 1912, abstr., THE JOURNAL, April 20, 1912, p. 1239.
Knopf, H. E.: Asthma in Children, *Berl. klin. Wchnschr.*, Aug. 12, 1912, abstr., THE JOURNAL, Sept. 28, 1912, p. 1226.
Levi, L.: Thyroid Treatment of Asthma, *Arch. gén. de méd.*, March, 1912, abstr., THE JOURNAL, May 4, 1912, p. 140.
McClanahan, H. M.: Management of Asthma in Children, *Am. Jour. Med. Sc.*, June, 1912, abstr., THE JOURNAL, July 6, 1912, p. 68.
Ebstein, W.: Constipation as Factor in Asthma, *Deutsch. med. Wchnschr.*, Oct. 19, 1911, abstr., THE JOURNAL, Nov. 25, 1911, p. 1806.
Comby, J.: Asthma in Children, *Arch. de méd. des enf.*, October, 1911, abstr., THE JOURNAL, Nov. 18, 1911, p. 1727.
Moon, R. O.: Asthma in Children, *Med. Press and Circular*, July 9, 1911, abstr., THE JOURNAL, Aug. 19, 1911, p. 688.
Parker, H. R.: Use of Antitoxin in Asthma, *New York State Jour. Med.*, January, 1911, abstr., THE JOURNAL, Feb. 11, 1911, p. 457.
Beaudoux, H. A.: Some Suggestions and Personal Experience in Dealing with Hay-Fever and Asthma, *St. Paul Med. Jour.*, July, 1911, abstr., THE JOURNAL, July 29, 1911, p. 425.

TREATMENT OF MUCOUS COLITIS

To the Editor:—Kindly give me references which take up the subject of mucous colitis, especially the treatment, thoroughly and in detail. I have under my care a man who has, in addition to the intestinal condition, a symptom-complex that has been pronounced by several physicians a toxic neuritis. It seems that as the intestinal trouble improves the nervous condition also abates, and vice versa. If any work has been done which deals with the relationship of these conditions or any observations made on cases relative to the association of these two conditions, literature on these matters would be of especial interest to me.

W. H. GOECKERMANN, M.D., Milwaukee, Wis.

ANSWER.—We are giving below a list of references to this subject as obtained from our index for the past two years. Our correspondent will find the relations of intestinal diseases to neuritis discussed in the article of von Noorden, published in THE JOURNAL.

Von Noorden, Carl: Intoxication Proceeding from the Intestine, Especially Polyneuritis, THE JOURNAL, Jan. 11, 1913, p. 101.

We would suggest that text-books on diseases of the intestines be consulted with reference to the subject of mucous colitis.

Benjamin, A. E.: The Correlation of Appendicitis, Mucous Colitis and Membranous Pericolitis, Society Proceedings, THE JOURNAL, Jan. 11, 1913, p. 149.
Leriche, R.: Resection of Posterior Spinal Roots for Herpes, Malperforans, Hyperchlorhydria and Membranous Colitis, *Deutsch. Ztschr. f. Chir.*, November, 1913; abstr., THE JOURNAL, Jan. 11, 1913, p. 167.
Hernaman-Johnson, F.: Treatment of Mucous Colitis in Children, *Med. Press and Circular*, Nov. 15, 1912; abstr., THE JOURNAL, Jan. 6, 1912, p. 68.
Pike, C. C.: Mucous Colitis, *Ohio State Med. Jour.*, Oct. 15, 1911; abstr., THE JOURNAL, Nov. 18, 1911, p. 1724.
Noble, G. H.: Twenty-Seven Cases of Latero-Lateral Anastomosis of Ileum and Sigmoid Flexure for Chronic Mucous Colitis, *Texas State Jour. Med.*, October, 1911; abstr., THE JOURNAL, Nov. 4, 1911, p. 1569.
Conto, M.: The Fever with Mucous Colitis, *Deutsch. med. Wchnschr.*, April 17, 1913.
Daniel, P.: Primary Mucous Colitis, *Proctologist*, March, 1912.
Higgins, H.: Diagnosis and Treatment of Mucous Colitis and Spastic Constipation, *Practitioner*, London, February, 1912.
Mechling, C. C.: Mucomembranous Colitis, *Pennsylvania Med. Jour.*, May, 1912.

GANGRENOUS AND EROSIVE BALANITIS

To the Editor:—1. Please give references to any foreign literature, in the past five years, on gangrenous and erosive balanitis due to a specific germ.

2. Also give references to any literature on tuberculosis of the body of the uterus.

W. L. K., Kansas City, Mo.

ANSWER.—1. The following may be consulted:

Corbus, B. C.: Erosive and Gangrenous Balanitis, the Fourth Venereal Disease, THE JOURNAL, June 7, 1913, p. 1769. (Long bibliography largely of foreign articles.)
Tiechie: Case of Gangrenous Balanitis, *Corr.-Bl. f. schweiz. Aerzte*, Dec. 20, 1912.
Romeo, P.: Erosive and Gangrenous Balanitis, *Gaz. d. osp.*, Oct. 4, 1910.

2. The following articles also may be consulted:

Stewart, M. J.: Two Cases of Tuberculosis of Uterus, *Glasgow Med. Jour.*, April, 1912; abstr., THE JOURNAL, May 18, 1912, p. p. 1547.
Keller, R.: Histologic Research on Route of Infection of Tuberculosis of Uterine Adnexa, *Arch. f. Gynäk.*, 1912, xcviii, No. 2.
Romeo, P.: Case of Tuberculosis of Body of Uterus, *Gaz. d. osp.*, Jan. 22, 1911.
Patel, M.: Treatment of Genital Tuberculosis in Women, *Rev. de gynéc. et de chir. abd.*, August, 1912.
Patel, M.: Treatment of Tuberculosis of Female Genital Organs, *Ann. de gynéc. et d'obst.*, 1912, xxxiv, Nos. 6 and 7.
Jung, P., and Engelhorn, E.: Experimental Research on Ascending Genital Tuberculosis, *Arch. f. Gynäk.*, xcii.
Horizontow, N. T.: Secondary Tuberculosis of the Female Genital Organs, *Zentralbl. f. Gynäk.*, Dec. 30, 1911; abstr., THE JOURNAL, Feb. 3, 1912, p. 383.
Sellheim, H.: Tuberculosis of the Female Genitalia, *München. med. Wchnschr.*, Aug. 1, 1911.
Kroemer, P.: Diagnosis of Tuberculosis of Female Genital Organs, *Deutsch. med. Wchnschr.*, June 8, 1911; abstr., THE JOURNAL, July 15, 1911, p. 254.
Poncet, A., and Leriche, R.: Inflammatory Tuberculosis of the Uterus and Adnexa, *Bull. de l'Acad. de méd.*, Paris, June 7, 1910; abstr., THE JOURNAL, July 16, 1910, p. 257.
Simmonds, M.: Tuberculosis of the Female Genitalia, *Arch. f. Gynäk.*, 1909, lxxxviii, No. 1; abstr., THE JOURNAL, May 22, 1909, p. 1725.
Martin, A.: Genital Tuberculosis, *Berl. klin. Wchnschr.*, Jan. 20, 1908; abstr., THE JOURNAL, Feb. 22, 1908, p. 650.
Kroemer, P.: Rarer Forms of Genital Tuberculosis in the Female, *Monatsschr. f. Geburtsh. u. Gynäk.*, November, 1907.

THYROID AND PARATHYROID GLANDS OF COWS

To the Editor:—Please state how and where to find the thyroid and parathyroid glands in a cow. What is the size and weight?

G. MES, M.D., Cullman, Ala.

ANSWER.—The following description is taken from Sisson's "Veterinary Anatomy," pp. 457 and 464.

"The Thyroid Gland (the horse).—The thyroid gland is a very vascular ductless gland, situated on the trachea close to the larynx. It is red-brown in color, and consists of two lateral lobes and a connecting isthmus.

"The lateral lobes are situated on either side of the first and second or second and third rings of the trachea, to which they are loosely attached. Each is about the size of a walnut, and has a convex superficial face which is related to the parotid gland and the omohyoid muscle, and a slightly concave, deep face, applied to the trachea.

"The isthmus in the adult horse is usually rudimentary. It may occur as a very narrow glandular band which connects the posterior extremities of the lateral lobes, extending across the ventral surface of the trachea, but it is frequently only a small strand of connective tissue, and sometimes is entirely absent. It may be represented by a small tail-like process of one lobe.

"The Thyroid Gland (the cow).—The lobes of the thyroid gland are more extensive and paler in color than in the horse, they extend further forward, overlapping the cricopharyngeus muscle to a small extent, and come in contact dorsally with the esophagus. They are flattened and have an irregular lobulated surface. In the young subject, the isthmus is well developed, being about half an inch in width.

"Accessory thyroids may be found, and parathyroids also occur near the posterior extremity or inner surface of the lateral lobes of the thyroid."

TREPHINING OPERATION FOR GLAUCOMA

To the Editor:—Please give references to the original article describing Elliot's trephining operation for glaucoma, and some subsequent literature on the subject.

FREDERICK T. CLARK, M.D., Westfield, Mass.

ANSWER.—The earliest article we can find on this subject is:

Elliot, R. H.: Simple Trephining in Glaucoma: *Indian Med. Gaz.*, July, 1910.

The following more recent articles may be consulted:

Elliot, R. H.: Newer Operations for Glaucoma, *Ophthalmoscope*, viii, 684; Operation of Simple Trephining of the Sclera for the Relief of Glaucoma, *Ophthalmoscope*, April, 1911.

Stephenson, S.: Acute Glaucoma Successfully Treated by Operation of Trephining the Sclera, *Lancet*, London, Oct. 21, 1911.

Fox, L. W.: Modified Trephine for Fergus-Elliot Operation in Glaucoma, *Ophth. Rec.*, December, 1912.

Bettremieux: Simple Sclerectomy in Glaucoma, *Ophthalmology*, April, 1912.

Bettremieux: Iridectomy and Sclerectomy in Glaucoma, *Ophthalmology*, April, 1912.

Terson, M. A.: Hemorrhagic Glaucoma, Sclerectomy, *Ophthalmology*, April, 1912.

MINERAL OIL AS A REMEDY FOR CONSTIPATION

To the Editor:—I have often thought of using a mineral oil as an anticonstipation remedy. The idea is that it will not be absorbed. I should like to know:

1. What is paraffin oil or white mineral oil? I believe there is a commercial product by that name.
2. Is that what is used?
3. What is the difference between it and Liquid Albolene or liquid petrolatum?
4. Please refer me to literature on the subject.

M. M. MARTINSON, M.D., Graysville, Tenn.

ANSWER.—1. Paraffin oil or white mineral oil is a term used for a purified peroleum. So far as we know, the terms are not proprietary.

2. This material is used to some extent as a remedy against constipation.

3. The terms "white mineral oil" and "liquid petrolatum" are synonyms—"liquid petrolatum" being the official name. Liquid Albolene is a proprietary name for a preparation essentially equivalent to liquid petrolatum.

4. The literature on this subject, so far as it exists, must be concealed under general titles such as "Treatment of Constipation." Reference to its use is found in some text-books.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

BENEFITS OF THE BRITISH INSURANCE ACT

Under this title Hon. Albert Halstead, U. S. Consul at Birmingham, England, discusses the effects of the British Medical Insurance Act in the *Daily Consular and Trade Reports*. Mr. Halstead's comments are limited to his own district, but may be fairly applied to the entire area covered by the Insurance Act. Mr. Halstead says:

The medical benefits provisions of the British national insurance act became effective Jan. 1, 1913, and with the end of the first quarter on March 31 some details of the working of this act became available. In the Birmingham area, over which the Birmingham Health Committee has jurisdiction, it was calculated that up to Oct. 29, 1912, there were 289,801 insured persons. For services during the first quarter of 1913 the aggregate due the doctors in the Birmingham area was $98,791.81. The total account rendered by druggists amounted to $35,394.05 and the total number of prescriptions was 234,344.

THE GLASS-BOTTLE TRADE IN RELATION TO THE INSURANCE ACT

Under the insurance scheme, for an 8-ounce bottle of medicine a pharmacist is allowed 2d. (4 cents) as a dispensing fee, and for a bottle over 8 ounces 3d. (6 cents). An extra charge is made for the drugs as explained elsewhere, and the prices allow the druggist about 30 per cent. profit. For a medicine bottle up to 8 ounces the druggist is permitted to charge 1d. (2 cents) and 2d. (4 cents) for a larger one, but on the return of the bottle in a clean condition must refund this charge. For poison bottles no charge is made to the insured patient, but the government pays 1d. for 4-ounce bottles and smaller, and up to 4d. for 20-ounce bottles. It happens, however, that the half-pint spirit or whisky bottle is frequently brought for medicine because it holds just 8 ounces. It has been said that the demand for the 10-ounce bottle was largely increased by the fact that the druggist obtained 1d. extra as a dispensing fee for it, but it appears that doctors are somewhat inclined to prescribe a 10-ounce bottle of medicine because, in half-ounce doses, it provides for practically a week's medicament at three doses a day.

The bottles in use in this district are all graduated and those used for filling prescription under the insurance act are of cheap quality, bottles being used that are just good enough to hold the medicine. The bottles are almost all of British origin, and prices have had a tendency recently to advance a little. Dealers are keen to get the best prices possible, but would not object to bottles of foreign origin. The greater number of dealers are located in London, and American manufacturers of bottles who seek to enter the British market would do well to get in touch with some of the large London agencies.

It is quite customary in the better-class trade for the name of the druggist to be blown into the bottle. The druggist buys a name plate for about $1.25, and the manufacturer blows the name into the bottles free of charge provided the order given is a reasonably large one.

EFFECT ON TRADE IN PATENT MEDICINES

From 13,000,000 to 14,000,000 of a total population of 46,000,000 in the United Kingdom are affected by the insurance act, and many of these it appears, have been purchasers of patent or proprietary medicines. As a result of the act the demand for such patent and proprietary medicines has been reduced by about one-third. While it is thought likely that this will be a permanent result of the insurance scheme with its medical benefits, it is recognized that these benefits have been operative only a few months and that at the same time the patent and proprietary medicine manufacturers have done much less advertising. It may be that some of the falling off is due to to this lessening of advertising while the effects of the act were being studied; it has been stated that for the next year it is the purpose of most of the patent medicine makers to double their advertising. This would be on the assumption that after the novelty of the medical benefits is worn off there will be a tendency to return to former favorites, and at the same time there will remain some 32,000,000 people in the country who are not receiving medical benefits under the insurance act and whose custom is worth consideration.

EFFECT ON METHODS OF FILLING PRESCRIPTIONS

Prior to January 1 a considerable proportion of the workmen who are affected by this act belonged to friendly societies and were treated by club doctors. This scheme of medical attendance did not provide for the filling of prescriptions by druggists, and in most workmen's neighborhoods it became customary for the doctor not only to prescribe the medicine, but to dispense it as well. Thus the doctor had a surgery with a more or less restricted range of drugs on hand, and although in some cases experienced pharmacists were employed, in others the dispensing was done by the doctor himself or by members of his family. To meet the requirements of these doctors, wholesale druggists sprang up who had practically little trade with the pharmacists but a large trade with doctors. As a result of the new act these wholesale druggists have been compelled to change their trade and to seek trade with pharmacists, as the doctors, except in remote country places where there are no druggists, no longer dispense medicines.

It has also become more and more customary for certain firms to put up tabloids intended for specific diseases and for doctors to prescribe such medicines. As these remedies are not included in the British Pharmacopeia the insurance doctors are no longer prescribing them, and it has been suggested that doctors in the future will have to know more about the compounding of prescriptions than in the past. They will have to depend on their own knowledge of drugs instead of on that of the expert chemists of the wholesale druggists. On the other hand it is noted that the act is still in its infancy, and only about 28 per cent. of the population of England is affected thereby.

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THE RIGHT OF A CITY TO REGULATE ITINERANT DOCTORS

A number of inquiries have recently been received regarding the right of a city to regulate or prohibit traveling "doctors" who make a practice of visiting the town for a few days at more or less regular intervals. It is well known in the medical profession that these men are generally graduates of low-grade schools, who have failed to make a living in legitimate practice and who, posing as "celebrated specialists" hope to take advantage of the ignorance of the people in the smaller towns and rural communities. As to their professional standing there is no question, they have none. Their legal standing is, however, a different matter. Speaking generally, a city has, under its inherent powers of police, the right to ordain ordinances for the preservation of the health and welfare of its citizens. Such a right is, of course, subject to the limitations of each municipal charter and to constitutional limitations.[1]

In Illinois:

The city council in cities, and the president and the board of trustees in villages shall have the following powers:

76. To appoint a board of health and prescribe its powers and duties.

77. To erect . . . hospitals . . . etc.

78. To do all acts, make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease.[2]

Power to license, tax, etc., itinerant merchants, etc.: "The city council in cities and the president and board of trustees in villages and incorporated towns shall have power to license, tax, regulate, suppress or prohibit itinerant merchants and transient vendors of merchandise."[3]

Under Section 62, Subdivision 78, and under Section 62a, it would seem that a city could impose a reasonable license fee on itinerant physicians. The Illinois medical practice act had a clause regulating itinerant physicians which was declared unconstitutional, being held class legislation.

Such a measure must be so drafted as to meet this difficulty. Any fee levied must be reasonable, and a city cannot necessarily prohibit when it simply has the power to regulate.

There is a case on record in which the court held that a city may prohibit an occupation or the like that is plainly detrimental to the public health without a specific grant in its charter; but when there are limitations of this nature (charter) care must be exercised not to overstep them.

SENATOR OWEN INTRODUCES BILL

Senator Owen introduced on July 10, Senate Bill 2722, providing for inspection by officers of the U. S. Public Health Service of all vessels, vehicles, trains, depots, etc., used in interstate commerce. The bill was referred to the Senate Committee on Public Health and National Quarantine. The text for the bill follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the officers of the Public Health Service may enter on the property of all common carriers when engaged in interstate commerce for the purpose of ascertaining whether the vessel, vehicles, trains, carriages, or conveyances of any and every kind, and depots, premises, and property of every description belonging to such carriers, are, while such carriers are engaged in interstate commerce, kept by them in a sanitary condition. And the Secretary of the Treasury is authorized to make all such reasonable rules and regulations as may be necessary to secure the keeping of such vessels, vehicles, trains, carriages or conveyances, and depots, premises and property of every kind, in a sanitary condition by such carriers while engaged in interstate commerce, and to direct, through the Solicitor of the Treasury, the institution of all such legal proceedings in the district courts of the United States as may be necessary to compel the observance of such rules and regulations by said carriers.

1. Dillon: Municipal Corporations, Sections 661 and following.
2. Chapter 24, Ill. Rev. Stat., 263, Art. 5, Sec. 62.
3. Chapter 24, Ill. Rev. Stat., 263, Art. 5, Sec. 62a.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 5-8. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.

NEBRASKA: Lincoln, August 13-14. Sec., Dr. C. P. Fall, Beatrice.

Florida May Report

Dr. J. D. Fernandez, secretary of the Florida State Board of Medical Examiners, reports the written examination held at Jacksonville, May 12-13, 1913. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 92 of whom 61 passed and 31 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama (1894) 75; (1910) 78; (1911) 70, (1912) 70.		77, 90;
Georgetown University	(1903)	80
Howard University, Washington, D. C.	(1912)	78
University of Georgia (1899) 75; (1912)		75
Atlanta College of Physicians and Surgeons (1908) 84; (1913) 75, 81, 81, 81, 82, 85, 93.		
Atlanta Medical College (1888) 75; (1891)		76
Atlanta School of Medicine (1910) 79; (1913) 75, 80, 82, 86		
Chicago College of Medicine and Surgery (1912)		84
College of Physicians and Surgeons, Chicago	(1903)	77
American Medical Missionary College	(1910)	85
Rush Medical College	(1907)	90
Hering Medical College	(1907)	80
Coll. of Med. and Surg., Physio-Medical, Chicago (1911)		77
University of Louisville	(1909)	91
Northwestern University Medical School	(1902)	91
Louisville and Hospital Medical College	(1908)	78
Tulane University of Louisiana	(1912)	91
Medical School of Maine	(1901)	75
College of Physicians and Surgeons, Baltimore	(1911)	81
University of Michigan, Dept. of Med. and Surg.	(1907)	82
Missouri Medical College (1876) 75; (1883)		79
St. Louis University (1904) 83; (1910) 86; (1911)		81
University and Bellevue Hospital Medical College	(1900)	90
Columbia University, College of Phys. and Surg.	(1901)	81
Bellevue Hospital Medical College	(1885)	81
North Carolina Medical College	(1913)	82
Eclectic Medical Institute, Cincinnati	(1896)	79
Jefferson Medical College	(1911)	87
Medical College of the State of South Carolina (1912)		79
Meharry Medical College (1912) 75; (1913)		77, 82
Universities of Nashville and Tennessee	(1910)	75
University of the South	(1894)	75
Vanderbilt University	(1912)	83
University of West Tennessee	(1913)	75
University of Virginia (1907) 81;	(1909)	88
Medical College of Virginia	(1908)	88
University of Toronto, Ontario	(1909)	75
University of Naples, Italy	(1907)	75

FAILED

University of Georgia (1911)		52
Atlanta College of Physicians and Surgeons (1904) 48;	(1910)	61
Atlanta Medical College	(1897)	50
Southern Medical College, Atlanta	(1882)	40
Atlanta School of Medicine (1911) 65;	(1913)	69
Southern College of Medicine and Surgery, Atlanta (1912) 40, 69; (1913) 64, 64.		
Metropolitan Medical College	(1899)	67
College of Physicians and Surgeons, Keokuk	(1898)	57
Kentucky School of Medicine	(1889)	50
University of Louisville	(1886)	32
Louisville and Hospital Medical College	(1884)	45
Hospital College of Medicine, Louisville	(1899)	39
Maryland Medical College	(1912)	68
Tufts College Medical School (1895) 54;	(1910)*	64
St. Louis College of Physicians and Surgeons	(1905)	62
American Medical College, St. Louis	(1911)	68
University of Buffalo	(1901)	63
Leonard Medical School	(1911)	62
Medical College of the State of South Carolina	(1912)	60
Memphis Hospital Medical College (1903) 51;	(1911) 50;	(1912) 59.
Meharry Medical College	(1913)	56
Vanderbilt University	(1894)	53
University of Havana, Cuba	(1912)	65

* Graduation not verified.

The following questions were asked:

ANATOMY

1. Give the origin, main branches and relations of the axillary artery. 2. Name the subdivisions of the alimentary canal, and give the name and location of the various glands found in the small intestines. 3. What is contained in the middle mediastinum? 4. Describe the knee-joint, giving bones entering into its formation, cartilages, ligaments and nerve- and blood-supply, and actions. 5. What is the fissure of Sylvius and what artery does it contain?

6. What bones enter into the formation of the orbital cavities? 7. Give origin, insertion and action of the gracilis muscle. 8. Name the ductless glands. 9. What muscles, arteries and nerves would be severed in a cross-section of the middle of the humerus? 10. Give origins, course and distribution of the pneumogastric nerve.

PHYSIOLOGY

1. Give the three main forces causing venous circulation. 2. Name the ganglia of the heart. 3. Give physiology of respiration. 4. Give physiologic reasons for coughing; yawning; sneezing. 5. What is meant by intrathoracic pressure; respiratory pressure. 6. Give physiology of micturition. 7. Define secretion; excretion. Give example of each. 8. Define the action of the heart. 9. Give the function of the spinal cord. 10. Name tracts of descending degeneration of the spinal cord.

SURGERY

1. Give treatment for compound fracture of tibia and fibula. 2. Describe Colles' fracture and give treatment. 3. What is gastroenterostomy? Describe the operation, and mention conditions requiring it. 4. Define proctoclysis. Describe its uses and mode of administration. 5. Define coxalgia and give treatment. 6. Give symptoms and treatment of strangulated hernia. 7. Give diagnosis and treatment of aneurysm of the popliteal artery. 8. What are the symptoms of floating kidney? Describe an operation for its correction. 9. Give indications and technic for paracentesis of membrana tympani. 10. Describe the operation of lumbar puncture in detail.

GYNECOLOGY

1. Define menstruation; vicarious menstruation. 2. Define pelvic cellulitis. 3. Define and give treatment of mastitis. 4. Define and give treatment of subinvolution; eversion of uterus. 5. What are the most frequent complications of the gestation period? The puerperal period? 6. Give the principal causes and treatment of sterility in women. 7. Give causes and treatment of vesicovaginal fistula. 8. Give causes and treatment of uterine hemorrhage occurring after menopause. 9. How would you diagnose malignancy in the uterus or cervix? 10. When and how is a lacerated cervix best repaired?

MATERIA MEDICA—THERAPEUTICS

1. If necessary to reduce temperature, what remedies do you use? Explain how they act. 2. What remedies would you give to correct anemic conditions? 3. Oleum Iigili. Give properties and uses. 4. Name the principal alkaloid of belladonna. Indication for its use. 5. Why should you prescribe the salts of the alkaloids instead of the alkaloids themselves? 6. What change is liable to take place in morphin after being kept in solution for some time? 7. Called to a case of sudden collapse, what is the quickest and most efficient remedy? Give its mode of administration. 8. Give the physiologic action of ergot and mention its therapeutic use. 9. At what two periods in intermittent fever would you prescribe quinin to produce the best results, and in what doses? 10. What chemical antidote would you prescribe, called to a case of carbolic acid poisoning?

OBSTETRICS

1. Define the term "ectopic gestation," and describe symptoms and treatment. 2. Describe two forms of vicious insertion of the placenta and give differential symptoms of each. 3. What precautions should be taken to prevent the occurrence of trismus nicentium? 4. Describe the management of breech presentations. 5. Describe, in detail, the symptoms and treatment of puerperal infection. 6. Enumerate the conditions which would justify artificial abortion. 7. Describe the operation of cesarean section. 8. Describe the symptoms and best methods of arresting post-partum hemorrhage. 9. In what class of cases should the pelvimeter be used? 10. Describe ophthalmia neonatorum, and give its proper treatment.

CHEMISTRY

1. What takes place when the two needles of a galvanic current are inserted into the human body? 2. Define chemically; an acid, a base, a salt. 3. What are the physical properties of sulphur? And why is it burned in the presence of water for disinfecting purposes? 4. What is formed by burning sulphur in the presence of water, and how much is necessary for each 1,000 cubic feet of air space? 4. How would you test alkaline urine for specific gravity, albumin, sugar, and carbolic acid? 5. Give in symbols the reaction of nitrate of silver and its antidote. Also give symptoms of chronic silver poisoning. 6. What is the difference between mercuric chlorid and mercurous chlorid? 7. What is the difference between a chlorate and a chlorid? 8. What is the difference between methylic alcohol and ethylic alcohol? 9. Why is ferric hydrate an antidote for arsenic poisoning? How is it freshly prepared? Give formula of the reaction. 10. How can you distinguish poisoning from antimony and poisoning from arsenic?

North Carolina June Report

Dr. Benjamin K. Hays, secretary of the North Carolina State Board of Medical Examiners, reports the written examination held at Morehead City, June 10, 1913. The number of subjects examined in was 14; percentage required to pass, 80, and not less than 35 in any one branch. The total number of candidates examined was 112 of whom 77 passed, 34 failed and 1 withdrew. Twenty-five candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Examined
George Washington University	(1911)	1
Howard University, Washington, D. C.	(1911)	2
Chicago College of Medicine and Surgery	(1913)	1
University of Maryland	(1904, 1) (1913, 6)	7
Johns Hopkins University	(1913)	2
Maryland Medical College	(1913)	1
College of Physicians and Surgeons, Boston	(1912)	1
Columbia Univ., College of Phys. and Surg.	(1913)	3
North Carolina Medical College	(1912, 2) (1913, 21)	23
Leonard Medical School	(1910, 1) (1913, 5)	6
Jefferson Medical College	(1911, 1) (1913, 5)	6
University of Pennsylvania	(1912, 1) (1913, 5)	6
Vanderbilt University	(1913)	2
University of Texas	(1906)	1
Medical College of Virginia	(1912, 1) (1913, 3)	4
University College of Medicine, Richmond	(1913)	8
University of Virginia	(1911, 1) (1913, 2)	3

FAILED

Howard University, Washington, D. C.	(1911)	1
Hospital College of Medicine, Louisville	(1904)	1
University of Maryland	(1912)	2
College of Physicians and Surgeons, Baltimore	(1910)	1
Leonard Medical School	(1911, 1) (1912, 2) (1913, 9)	12
North Carolina Med. Coll.	(1905, 1) (1912, 2) (1913, 4)	7
Medico-Chirurgical College of Philadelphia	(1912)	1
Temple University	(1912)	1
Medical College of the State of South Carolina	(1912)	1
University of Tennessee	(1910) (1912)	2
Chattanooga Medical College	(1908)	1
Meharry Medical College	(1912)	1
Medical College of Virginia	(1913)	2
University College of Medicine, Richmond	(1912)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hospital Medical College, Atlanta	(1911)	Tennessee
College of Physicians and Surgeons, Indianapolis	(1887)	Indiana
University of Louisville	(1911)	Kentucky
Tulane Univ. of Louisiana	(1905) (1907) (1910) (1911)	Louisiana
University of Maryland	(1908)	South Carolina; (1910) Maryland
Johns Hopkins University	(1910)	Maryland
College of P. and S., Baltimore	(1908)	W. Virginia
Albany Medical College	(1894)	New York
Starling Medical College	(1892)	Penna.
Jefferson Medical College	(1911)	Delaware
University of Pennsylvania	(1902)	Pennsylvania; (1911) Maryland; (1911) New York.
Medico-Chirurgical College of Philadelphia	(1906)	Georgia
University of the South	(1904)	South Carolina; (1906) Tennessee
University of Tennessee	(1894)	Tennessee
Vanderbilt University	(1899)	S. Carolina
Medical College of Virginia	(1911)	Virginia
University College of Medicine, Richmond	(1908)	Virginia; (1909) Florida.

The following questions were asked:

ANATOMY, PATHOLOGY, HISTOLOGY AND BACTERIOLOGY

1. Locate and describe the cecum. 2. Give origin, course and distribution of the seventh nerve. 3. Describe the right and left subclavian veins. 4. Describe the diaphragm, its principal openings and nerve-supply. 5. Describe the mastoid portion of the temporal bone and name the muscles attached thereto. 6. Name the ligaments of the hip-joint. 7. Relate the difference between a virgin uterus and the uterus of a multipara. 8. What anatomic parts are involved in the descent of the testes? 9. Describe the lesion found in the different forms of cirrhosis of the liver. 10. Give the gross pathology of amebic dysentery. Describe the organism giving rise to it and name the pathologic condition of the liver often associated with it.

Answer only eight questions.

PHYSIOLOGY AND HYGIENE

1. What do you consider the chief difference in the function of epithelial and connective tissue? 2. Name classes of foods. Which of these is alone capable of sustaining life? What chemical element is usually spoken of as the chief characteristic of this one? What per cent. of the molecule is composed of this element? In the form of what substance is this element chiefly eliminated? Where is this substance formed? 3. Name enzymes found in alimentary canal and give place found and function. 4. Give classification of white blood-corpuscles and per cent. of each found in normal blood. 5. What is the fluid in muscle tissue called? What is its chemical reaction? How is this affected by fatigue? By death? Explain. 6. Trace circulation of blood through kidney. 7. Define wallerian degeneration. 8. Give distribution of pneumogastric nerve and function in each locality. (That is, state class of nerve in each locality.) 9. What is the significance of colon bacilli in drinking water.

MATERIA MEDICA AND THERAPEUTICS

1. Mention the conditions which affect the dosage of medicines. Name the methods of introducing medicines into the circulation. 2. Give the physiologic action of saline purgatives and their therapeutic uses. 3. Name the three most used preparations of opium and state how much of each represents one grain of opium. Explain the constipating action of opium. 4. Name an antidote for each of the following, and state whether this is physiological or chemical: arsenic, opium, copper and strychnin. 5. State what remedies are used to reduce temperature. Explain how they accomplish this result, and describe how used. 6. What drugs would you use to stimulate the heart's action, to produce emesis, to control hemorrhage, to produce sleep, to relieve pain. Doses of each. 7. Name several drugs that render urine alkaline. Give their doses. What class of acids would you use to acidify alkaline urine? Give an example. Give the composition of linimentum calcis and therapeutic uses. 8. What is incompatibility in medicine, and what are the different kinds of incompatibles? Give an example of each. This examination counts 80, oral 20.

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CHEMISTRY AND DISEASES OF CHILDREN

1. Describe the process of manufacture of chloroform, ether and nitrous oxid, and express in equations the reactions respectively occurring in their formation. 2. Review briefly the theory of ions or of electrolytic dissociation. 3. The composition of normal urine represents the approximate equilibrium between the acidic and the basic end-products of metabolism. Name several food-substances which contribute to the establishment of acid conditions, and several others which contribute, in like degree, to the establishment of basic conditions. 4. What two sugars are especially concerned in the anabolism of the tissues? What organ converts levulose and lactose into glucose? How would you determine the limit of assimilation of the various sugars? 5. What are fats chemically? In what two ways do fats form in the organism? How is the composition of the fats of the diet affected in the process of digestion and assimilation? What is the significance of excessive unresolved fat and of fatty acid crystals in the feces? What is the final fate of the fat in the body? 6. State the general plan of the enzymotic hydrolysis of the protein molecule, and designate the form which the resulting products must assume prior to absorption and nutrification. 7. Discuss the properties, the relative merits, and the indications for using the various carbohydrates in infant-feeding. 8. Discuss the question of high protein feeding in children with particular reference to (*a*) indications for its use, (*b*) the chemical and physical changes resulting in the feces, and (*c*) its influence over general metabolism. 9. Describe Kernig's and Babinski's reflexes, and give their respective diagnostic value. 10. Describe congenital atelectasis, and state the best method of remedying the condition. Answer any six of the foregoing questions. The equivalent of four other questions will be given orally and by laboratory process.

GYNECOLOGY AND OBSTETRICS

1. Source, composition and specific gravity of liquor amnii. 2. Discuss briefly the physiology of the transmission of insanity, feeble-mindedness or other mental or moral traits or characteristics, or physical defects, or characteristics from parent to offspring. Give Mendel's formula of heredity. 3. What constitutes the pelvic floor? 4. What are some of the indications for producing sterility in a woman and describe the proper operation. 5. Differentiate uterine polypus and chronic inversion of the uterus, and give proper treatment in each case. 6. (*a*) What is the normal course of delivery in occipito-posterior position? (*b*) In which of the usual course is not followed what is the method of delivery? (*c*) And in the latter case what is the percentage of mortality to mother and child? 7. (*a*) What are some of the diseases of the breast liable to occur during the puerperium? (*b*) What is the treatment for each? (*c*) What prophylactic measures should be instituted? 8. (*a*) State some of the indications, and (*b*) describe what you consider the best operation for emptying the uterus at the second month of uterogestation, (*c*) at the sixth month. Answer only six questions. This written examination counts 60. The practical examination counts 40.

PRACTICE OF MEDICINE

1. What is aphasia? (*a*) What is the difference between sensory and motor aphasia? (*b*) Where is the central lesion in motor aphasia located? 2. What is multiple neuritis? (*a*) Give etiology, diagnosis and prognosis. 3. What is diabetes? (*a*) What are the modern theories concerning its etiology? (*b*) Discuss the carbohydrates in the treatment. 4. Describe briefly the character and situation of pain in gastralgia, ulcer of the stomach, lead colic, general peritonitis, appendicitis, gall-stone colic and kidney colic. 5. What are the chief causes of secondary anemia? (*a*) How would you differentiate secondary anemia from primary pernicious anemia? 6. Define aneurysms. How may they be classified? (*a*) How would you differentiate between aneurysm of the ascending and transverse aorta? 7. What are the chief causes for obstruction of the common bile-duct producing jaundice? (*a*) Give the clinical manifestations produced by obliteration at Vater's ampulla. 8. Define pellagra. (*a*) Give the clinical history. (*b*) Give the most recent treatment, and the mode of administration. This paper valued at 80, oral at 20.

SURGERY

1. Name every disease or condition (occurring to you) involving the genito-urinary tract, which might produce hematuria. 2. Describe the operative technic of a resection of the elbow joint, naming the important structures to avoid. 3. Name (*a*) the varieties of dislocation on the shoulder joint; (*b*) diagnostic symptoms of a subcoracoid; (*c*) technic of reduction of a subcoracoid. 4. Give the surgical guides for the location of the lingual artery, for the purpose of ligation. 5. How would you treat a compound fracture of the tibia at its middle third? 6. Give symptoms and treatment of an osteomyelitis of the tibia. 7. Define (*a*) chancroid, or soft chancre, (*b*) How would you treat a chancroid or soft chancre of the penis? (*c*) What is its incubation period? 8. Describe the operative technic of a tracheotomy. The maximum for this examination will be 80. The maximum for the oral examination will be 20.

Illegal Practitioners.—Successful prosecution of illegal practitioners of medicine depends first of all on the disposition of the authorities to prosecute. There are exceptions, but as a rule our courts are ready and willing to get in behind genuine fakers who are violating the medical practice act, if anything like proper evidence is forthcoming. Officers have long since learned that it does not pay to arrest alleged violators of any law merely on suspicion, unless a real crime has been committed. It is not sufficient to believe or even to know that a law has been violated, there must be positive proof before the courts can afford to convict.—*Texas State Med Jour.*

Book Notices

OPHTHALMIC SEMEIOLOGY AND DIAGNOSIS. By Charles H. Beard, M.D., Surgeon to the Illinois Charitable Eye and Ear Infirmary. (An International System of Ophthalmic Practice. Edited by Walter L. Pyle, A.M., M.D.) Cloth. Price $4 net. Pp. 400 with 84 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

While there are all sorts and conditions of works on the eye and its diseases—in particular, text-books without number—it has remained for an American to write an acceptable, indeed the only monograph on the all-important subject of ocular symptomatology and diagnosis. To the uninitiated, treatment seems to be the end and aim of study, and while ophthalmic therapy is by no means to be forgotten, yet surely the essentials of therapeutics lie in semeiology. In his search for the "practical" side of medicine the American is prone to rush ahead to the treatment of his patient without due regard to the importance of deciding exactly what is wrong with him. This tendency may well be corrected by the perusal of a book that considers, in the original and readable fashion characteristic of Beard's writings, the etiology and diagnosis of ocular affections, without a word about their therapeutic conduct. Such a volume assists in restoring the diagnostic element in ophthalmology to its proper perspective. In his introduction Beard deals fully and effectively with the histology of the parts involved, a matter of importance in gaining a rational acquaintance with the symptomatology of eye diseases. Passing to the objective examination, he very properly insists on the examination of both eyes "no matter if the patient positively affirms that only one eye is at fault." Beginning with the eyelids Beard carefully considers the whole anterior ocular apparatus, especially from the regional and anatomic points of view—dealing incidentally only with the subjective symptoms. Of the nineteen chapters that constitute the whole work the most interesting is that relating to the pupil. Of particular value is the scheme that shows the effect on the pupils and its reflexes, as well as the vision, of lesions situated along the course of the ocular nerves. A chapter is devoted to the consideration of cataract, and some order is brought out of chaos by the adoption of classification by age, cause, consistency, color, extent, seat and disposition of opacities, complications, the period of development and its anatomic relations. As Beard is not only an ophthalmologist of reputation but a fundus artist of high rank, it is not strange that this book should exhibit some of the most faithful ophthalmoscopic illustrations we have seen. The work is one to be studied and read a number of times by ophthalmologists instead of being merely added to the library as a book of reference.

THE SURGICAL DISEASES OF CHILDREN. By William Francis Campbell, A.B., M.D., Professor of Anatomy, Long Island College Hospital, and LeGrand Kerr, M.D., Attending Pediatrist to the Methodist Episcopal, Williamsburgh, Bushwick and Swedish Hospitals. Cloth. Price, $2. Pp. 693, with 271 illustrations. New York: D. Appleton & Co., 1912.

This book is dedicated "to the family physician on whose conscientious care and devotion to human welfare depends the efficiency of future men and women." This dedication indicates the chief object of the work, which, in addition to being of high value to the surgeon for its clear-cut indications and directions for surgical interference, should be of still greater value to the family physician who has the primary observation of the little patients and whose alertness in recognizing the beginnings of surgical diseases in children may be of the greatest service in the saving of life and limb. The authors are particularly and properly forceful in their teaching that the surgery of childhood deals with growing bodies, complex organisms, and must be done with a full knowledge of technic plus that of "nutrition, development and future efficiency." The first sections of the book devoted to the qualifications of the pediatric surgeon, the expression of disease in the young child and examination are particularly complete and worthy of studious consideration. There is little fault to be found with the sections on

regional surgery. In general, descriptions are clear, indications for operation well chosen and the surgical teaching sound. In a very few instances subjects are given rather meager consideration, but the general excellence of the book is such that these may be overlooked. The volume is freely illustrated and in its typography reflects credit on the publishers. It is a valuable addition to the library of both general practitioner and surgeon.

BOVINE TUBERCULOSIS AND ITS CONTROL. By Veranus Alva Moore, B.S., M.D., V.M.D., Professor of Comparative Pathology, New York State Veterinary College. Cloth. Price, $2 net. Pp. 205 with 30 illustrations. Ithaca, N. Y.: Carpenter & Co., 1913.

There are few problems in bacteriology which have been investigated with so much intensity as the problem of the transmission of tuberculosis from cow to man, especially through the medium of milk. The important work of Park and Krumwiede has illuminated the subject more than any other work, and there can be no doubt to-day about the transmissibility of tuberculosis through milk. With this certainty it becomes more important than ever to devise and carry out means for the eradication of tuberculosis from cattle. Moore's book, therefore, is timely and as far as we know the only book of its kind. The author takes a conservative stand when insisting that the eradication of tuberculosis among cattle should be gradual rather than forced suddenly on the cattle owner. Recognizing the reliability as well as the limitations of the tuberculin test, he advises the limiting of compulsory eradication of tuberculous cattle to those which can be detected by physical examination. The tuberculin test is to be applied only when specially solicited by the cattle owner, and its general use advocated at some future time. Stress is laid on the necessity of educating cattle owners both for public health and for economic reasons. The book treats the various subjects in an exhaustive manner. The history of tuberculosis in cattle, the distribution and the cause are subjects for the first three chapters. Attention is given to the methods of dissemination, as these really form the foundation for preventive measures. The Bang and Ostertag methods of eradication of tuberculosis in herds are given in detail and the success in Denmark and Germany discussed. A reprint of the report of the International Commission on the Control of Bovine Tuberculosis is given as an appendix. The clear and popular style of the book makes it particularly valuable. The producer of milk, the health officer, the packer and butcher and those interested in the artificial feeding of infants can learn much from a study of the book.

DISEASES OF WOMEN. By Thomas George Stevens, M.D., B.S., F.R.C.S., Obstetric Surgeon, St. Mary's Hospital, London Medical Publications. Cloth. Price, $5.50. Pp. 431, with 202 illustrations. New York: Oxford University Press, 1912.

In this work the author has endeavored to present the subject-matter, comprising gynecology, on a pathologic basis, in the same manner as medicine and general surgery. In constructing this basis he has found it convenient to compromise between a purely pathologic and an anatomico-clinical classification. He regards the great improvements which have been made during recent years in treating female pelvic disorders as the practical results of applying general surgical principles on a sound pathologic basis. The opening chapters cover in a conventional way diagnosis, anatomy and the development and the malformations of the generative organs. The relation of obstetrics to gynecology is well expressed in two chapters given over to the pathologic effects of parturition and accidental injuries and the anomalies of pregnancy. The chapters are short and such subjects as surgical lacerations, hydatiform mole and extra-uterine gestation are necessarily briefly set forth. For laceration of the perineum a modification of the flap-splitting procedure is able described. Infections are too briefly considered and no effort is made at a modern classification with respect to the endometrium. Thus chronic endometritis is described as a disease *per se* and its cure is "to systematically scrape away the whole endometrium with a sharp curet." In retroflexio uteri, a form of the Gilliam operation is described. The value of the pessary in retrodisplacements and in procidentia is emphasized perhaps more than we are accustomed to in our American texts. Unusually appropriate chapters in a work of this nature are those given over to the urinary system in relation to gynecology and general conditions associated with pelvic disorders. The last three chapters are of marked importance, preparations for operation and technic, the after-treatment of operations, and the postoperative complications. Brevity and lucidity characterize each discussion. Many of the illustrations are photomicrographs, the larger ones unusually successful from the point of view of demonstration. The author has attempted in these to provide superior illustrations by a new method, that of direct photography on a plate exposed in the rays of the epidiascope. While not yet perfect, such photographs have yielded to reproduction so as to produce unusually clear illustrations. Altogether the volume forms a distinctive addition to the "London Medical Publications."

CLINICAL LABORATORY METHODS. A Manual of Technic and Morphology Designed for the Use of Students and Practitioners of Medicine. By Roger Sylvester Morris, A.B., M.D., Associate Professor of Medicine in Washington University, St. Louis. Cloth. Price, $3. Pp. 343, with 48 illustrations. New York: D. Appleton & Co., 1913.

This book deals only with methods and morphologic elements which are of diagnostic importance. Methods of proved value in the determination of the abnormal in urine, gastric contents, feces, blood, sputum and puncture-fluids are given in detail, and were evidently selected by one thoroughly familiar with methods and technic. The Wassermann test is omitted; this is strictly in keeping with the object of the book, as the average practitioner cannot hope to become proficient with this test. Likewise, chemical formulas and reactions are conspicuously absent — perhaps more so than is necessary. As a laboratory manual for the student or practitioner, the book can be highly recommended as a reliable guide.

Medicolegal

Performance of Operation on Unconscious Youth without Any Consent

(*Lake vs. Lowrie (Mich.), 136 N. W. R. 1106*)

The Supreme Court of Michigan affirms a judgment for the defendant, on a verdict directed in his favor in this case, where the plaintiff contended that his foot should not have been amputated at all, and more particularly that it should not have been amputated without first obtaining his consent or the consent of his parents, who went to the hospital as soon as possible after learning of his injury. The court says that the plaintiff, a boy 15 years of age, while crossing a railroad track was knocked down by an engine and his left foot was mangled and crushed. There was a compound disarticulation of the bones of the foot, and one of the principal bones of the arch, the "scaphoid" bone, was torn away entirely, the flesh was crushed and torn from the top of the foot, leaving the muscles, ligaments and bones exposed. The plaintiff testified: "I could see the bones sticking out. I could see they weren't broken. Don't know how many bones were sticking out; around four or five, something like that." Shortly after his injury, the plaintiff was removed in an ambulance to a hospital. He was partially conscious on his arrival and was able to communicate his name and the name of the street on which he lived to the attending surgeons. Within 10 or 15 minutes after his arrival, he lapsed into a comatose condition, and later into complete unconsciousness. Efforts to revive him by injections of strychnin and infusion of a saline solution were made, but he remained unconscious until after the operation.

Soon after his arrival at the hospital, at 10:15 a. m., the plaintiff's foot was examined by four house physicians connected with the hospital. They concluded that prompt surgical treatment was necessary and telephoned to the defendant, who was assistant surgeon of the railroad. The defendant arrived at the hospital at 10:45 a. m. On examining the

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plaintiff, he found him unconscious, with a weak pulse and dilated pupils. The foot was found to be cold and dead, the circulation having been interrupted. The defendant testified that he learned from the house surgeon the boy's name and residence street. With reference to the residence, he knew the distance from the hospital and the time it would take to get from there to the hospital; that he inquired of the house surgeon if any one, any relatives, were present, and was informed that no person was present whatever. After a consultation with the four house physicians, it was agreed by all that an immediate amputation was necessary to save the plaintiff's life. The foot was amputated and the plaintiff recovered.

The first question presented was whether it was necessary to amputate. Taking all the testimony on behalf of the plaintiff and considering it broadly, it amounted, at most, to this: That by following a different course the plaintiff's foot might have been saved. While the witnesses disagreed on some details, they apparently all agreed that the proper course for a surgeon to pursue, when confronted by such an exigency, is to consult with another or others, and then exercise the best judgment and skill of which he is capable. This seemed to have been the course followed by the defendant. The four house surgeons, after consultation with the defendant, concluded, with him, that an immediate operation was necessary to save the plaintiff's life.

Taking into consideration the condition in which the plaintiff was when the defendant reached him, the court has no hesitation in holding that the defendant was amply justified in treating it as a case of emergency, and his conduct should be viewed in the light of the legal principles governing such cases.

While the testimony offered on behalf of the plaintiff was insufficient, in the court's opinion, to raise a question of fact for the determination of the jury as to whether the defendant was guilty of negligence through an error in judgment, the plaintiff's case would not be aided even if that issue had been determined in his favor. In an ordinary action for negligence, the fact that the defendant has acted according to his best judgment is no defense. His act is to be judged by the standard of conduct of an ordinarily prudent man under the circumstances. In conduct resting on judgment, opinion or theory, however, a different rule has been recognized. It would be unreasonable to hold a properly qualified physician or surgeon responsible for an honest error of judgment, where, as in the instant case, he is called on to act in an emergency and must choose between two courses of action either one of which involves the possibility of the gravest hazard to the patient.

It is, the court thinks, very clear on this record that the question presented to the defendant, at the moment he was called on to act, was one of judgment only. Instant action of some sort was imperative. In reaching a conclusion as to the proper course to be pursued, the attending surgeon must necessarily be influenced by many considerations: The physical character of the wound, the fact that there was a compound dislocation of the bones of the foot, the entire absence of one of these bones, the stripping off of the flesh from the anterior part of the foot leaving the tendons bare and shiny, the fact that the foot had become wholly devitalized, the presence of hemorrhage, the danger from blood poisoning at the time or from future infection, the character and quantity of foreign matter, dirt, cinders, etc., in the wound. To a consideration of these matters must be added a careful attention to the general condition of the patient, the degree and cause of the existing shock, the apparent ability or inability of the patient to resist shock, the condition of the temperature, pulse and respiration, and the reaction or lack of it produced by the administration of stimulants. Called on to act under such circumstances and to determine which of two courses (one entailing certain mutilation and the other probable death to the patient) should be followed, it is apparent that the defendant was not bound by the ordinary rules of negligence, but was entitled to insist that, having used his best judgment, he was not liable.

There is nothing in this record to indicate that, had the parents of the plaintiff been present at the operating table, they would have refused their consent to the operation. Indeed, it is inconceivable that such consent would have been withheld in the face of the determination of five duly qualified physicians and surgeons that it was necessary to save the plaintiff's life. But the defendant testified, and in this he was not contradicted, that he made inquiry for relatives of the plaintiff and was told that none were in the hospital. Suppose that his informant was in error (which is not certain), the defendant had a right to rely on the information and to act in the emergency on the theory that to obtain consent was impracticable.

On the question involved in this case a valuable collection of authorities will be found in *Gillette vs. Tucker*, 93 Am. St. Rep. 657, note. See, also, 6 Cyc. 675; 30 Cyc. 1587.

The fact that surgeons are called on daily, in all our large cities, to operate instantly in emergency cases in order that life may be preserved, should be considered. Many small children are injured on the streets in large cities. To hold that a surgeon must wait until perhaps he may be able to secure the consent of the parents before giving to the injured one the benefit of his skill and learning, to the end that life may be preserved, would, the court believes, result in the loss of many lives which might otherwise be saved. It is not to be presumed that competent surgeons will wantonly operate, nor that they will fail to obtain the consent of parents to operations where such consent may be reasonably obtained in view of the exigency. Their work, however, is highly humane and very largely charitable in character, and no rule should be announced which would tend in the slightest degree to deprive sufferers of the benefit of their services.

Waiver of Privilege Including Subsequent Examination

(*Putnode vs. Foote* (*N. Y.*), *138 N. Y. Supp. 221*)

The Third Appellate Division of the Supreme Court of New York says that the plaintiff, who brought this action to recover damages for alleged personal injuries, did not call her attending physician as a witness in her behalf. He was called as a witness by the defendant, however, and when first called, and sought to be examined by the defendant's counsel, the plaintiff objected to his being permitted to disclose what he had learned with respect to her injuries and her physical condition while treating her professionally. The trial court properly ruled that he was prohibited from so doing by the provisions of Section 834 of the New York Code of Civil Procedure. Whereupon, without objection, the plaintiff adopted the physician as her own witness, and on her examination he detailed her injuries resulting from the accident, his manner of treatment, and her progress toward recovery, and that after a time he ceased treating her, because he considerd she needed no further attention.

The trial occurred about seven months after the injury, and about five months after the witness had ceased his treatment. The plaintiff had testified that at the time of the trial she was still suffering from her injury. On reexamination of the physician by the defendant, which in effect was a cross-examination, in view of the testimony elicited from him by the plaintiff herself, he testified that he had examined the plaintiff two or three days before the trial at her request, and he was asked to state the physical condition in which he found her at that time. The plaintiff objected to his giving such testimony, and the objection was sustained; but it was error to exclude the evidence of what the witness learned respecting the plaintiff's injuries and her recovery from them on the subsequent examination.

The plaintiff, by adopting the physician as her own witness and interrogating him as to her injuries and ailments resulting from the accident, waived her privilege of having him remain silent as to what he learned on an examination of her after his regular treatment had ceased. They were the same injuries and ailments which he had treated, and, having interrogated him in open court as to a part of what he learned concerning them, she could not shut the door as to the

remainder. Notwithstanding the provisions of Section 836 of the Code of Civil Procedure respecting a written waiver of the testimony of a physician, the examination of a physician in open court operates as a valid waiver. A waiver respecting the testimony of an attending physician, once made, is general and lasting, and cannot be recalled. A physician, being called to testify by his patient as to the existence and treatment of a certain ailment after injury, may be asked by the opposite party if he did not treat such patient for the same disease at a prior time; and he may also be interrogated respecting what he learned on a subsequent examination after his treatment at the time of the accident had ceased.

Appeals from and Reviewing of Board of Health Regulations

(Board of Health of Cranford Township vs. Court of Common Pleas (N. J.), 85 Atl. R. 217)

The Supreme Court of New Jersey holds that the court of common pleas is without jurisdiction to try anew an appeal from the small cause court adjudging a defendant guilty of a violation of the provisions of the sanitary code of a municipality, ordained under the provisions of the act creating local boards of health. If such a right of appeal exist, it confers no power on the common pleas to adjudicate on the reasonableness of the regulation of the local board of health, since such an issue can be determined only by this court on certiorari.

It was not within the legislative intent, in enacting legislation conferring on the local boards of health the power to prescribe quarantine regulations in a district or locality infected with a contagious disease, to subject the discretion of such boards to the review of the local court for the purpose of substituting the judgment of such tribunal for that of the boards to which the power is specifically committed. If the boards of health so constituted transcend their authority in a given case, the act itself provides a remedy to the party aggrieved.

The court says that it is unable to perceive any authority in the legislation itself, or in the public policy on which it is based, which can be said to contemplate the submission to a legal tribunal of the public necessity which requires in an emergency the prompt and expeditious intervention of a board to which the legislature for the protection of life and health in a community has especially committed the determination of the facts.

No question was made in this case as to the conceded power of a proper reviewing tribunal to pass on the reasonableness of an ordinance or a resolution passed under general laws, or the manner of the exercise of the powers therein conferred. That question has long been settled in the affirmative by repeated adjudications. But the insistence was that a tribunal to which an appeal is presumably given may, by its review of conditions and exigencies in a trial anew, determine adversely to the board to which the power has been specifically committed, by legislative act, that its exercise in any given case was unwarranted, and that its discretion was improperly exercised. The court finds no authority in the act for such a claim, and it is proper to assume that, if the legislature intended to confer such power, it would have found expression in the act. The statute makes provision for the interposition of the court of chancery under certain conditions, and it defines the liability which may be imposed on the members of the board by reason of an excessive or illegal use of power conferred. The legislative recital of these remedies carries with it a presumption of the exclusion of other and additional remedies.

To assume that the legislature intended to confer a review of a discretionary power of this character, vested in a statutory board, charged with its exercise in critical situations, involving detriment to the life and health of a community, is tantamount to a declaration that the police power of the state is moribund and useless. It will not be assumed, therefore, in the construction of such a statute, that the legislature intended to defeat its own will or to create absurd results such as would ensue under such conditions.

Society Proceedings

COMING MEETINGS

American Public Health Association, Colorado Springs, Sept. 9-13.
Electro-Therapeutic Association, New York, Sept. 2-4.
Kentucky State Medical Association, Bowling Green, Sept. 2-4.
Michigan State Medical Society, Flint, Sept. 5-6.
Ohio State Medical Association, Cedar Point, Sept. 2-4.

CONNECTICUT STATE MEDICAL SOCIETY

One Hundred and Twenty-First Annual Meeting, held at Hartford, May 21-22, 1913

(Concluded from page 219)

The Anilin Dyes in Surgery

DR. JOHN W. CHURCHMAN, New Haven: Fifteen years ago I found that it was possible to demonstrate a very sharply selective affinity between a common dye, gentian violet and certain bacteria. By the use of this dye one can pick out distinctly two kinds of organisms: one, absolutely unaffected by the dye; and the other, killed, if stained with it, and prevented from growing if gentian violet is added to the mediums in which it is planted. It was found that the organisms killed by this dye were the ones which retain the stain in the Gram method. In poliomyelitis we can say positively that the dye has a distinct restraining effect on the virus, although I am not yet ready to say that it actually kills it. I feel sure that eventually something important will come out of the findings in this line. At present we are able to determine the function of a few organs with some degree of accuracy. The motor capacity of the stomach may be thus fairly well measured.

DISCUSSION

DR. LEO F. RETTGER, New Haven: In recent years anilin dyes have come in for a great deal of attention. In fact methylene blue has been regarded as a peculiarly active agent and was known as far back as 1880. It and Dr. Churchman's gentian violet have a certain action on bacteria. My results have borne out those of Dr. Churchman. All of these dyes have wonderful diffusibility through the body. With this quality and the comparative non-toxicity, if the extremely disinfectant action can be combined, there is a great deal of hope for the treatment of all sorts of bacterial infections. If we can improve some of these dyes, increase their bactericidal action and make them more stable in the body, and yet not increase their toxicity, we shall have the ideal chemical for chemotherapy.

Present Status of the Roentgen Ray in Diagnosis

DR. ARTHUR C. HEUBLEIN, Hartford: We have had to overcome the skepticism concerning the accuracy of the Roentgen ray in the diagnosis of bone injuries, and the same obstacle has seemed to follow us in proving its efficacy in diagnosing urinary calculus, lesions of the gastro-intestinal tract with a bismuth-meal enema, and hydronephrosis and ureteral kink by means of the collargol injection of the ureter. This skepticism is fast disappearing. The Roentgen ray is now used for the detection of stones in the urinary system. In the lower ureteral region it is absolutely necessary for the cystoscopist and roentgenographer to work together. Gallstones are seldom found by means of the Roentgen ray, being largely made up of organic salts.

DISCUSSION

DR. THOMAS N. HEPBURN, Hartford: We have lately, with the aid of the Roentgen ray and collargol injection of the ureter, discovered that ureteral disease is comparatively common. In making collargol injections we use a dilating catheter inserting it into the ureteral part until it fits snugly, and then letting the collargol flow in, using the gravity method. Anywhere along the course of the ureter, you may see the stricture in the fluid column. Roentgenograms will also help to decide what one is going to do to the kidney.

It is absolutely essential in taking pictures for renal calculus to take both kidneys, for double renal calculus is exceedingly common. It is also important for the surgeon to get a picture after operation in order to prove that the calculi are not there.

DR. ORRIN R. WITTER, Hartford: I would emphasize the value of a negative finding in the case of a kidney condition in which the entire clinical picture is that of renal calculus with extreme pain and blood in the urine, the roentgenogram being negative.

DR. GEORGE BLUMER, New Haven: Occasionally chronic interstitial nephritis is accompanied with typical attacks of renal colic. In such a case, a negative picture would be of the greatest value.

Pyelitis

DR. CHARLES J. BARTLETT, New Haven: Pyelitis is common in both adults and children, is one of the easiest conditions to pass unrecognized, and is frequently overlooked or mistaken for some other disease. In acute pyelitis the destruction of the tissue is slight, but in the later stages the organ is beyond repair. Under normal conditions the urine is bactericidal and quite resistant to bacterial invasion. The most common predisposing cause is some anatomic condition interfering with the outflow of urine. The rational treatment of pyelitis as well as polyuria in general is by the use of hexamethylenamin. In the small doses in which it is usually applied there is no free formaldehyd formed in the urine in most cases. The quantity must be increased, however, until free formaldehyd is formed. The toxic effect is then produced; the dose may be increased until this appears. When vaccines are used they should be autogenous.

Acute Primary Pyelitis in Children

DR. FRITZ C. HYDE, Greenwich: This is not an uncommon disease. Frequently the routine examination of the urine would probably disclose unexpected pus. It is altogether possible that in these cases of mild infection the patients often recover without special treatment. I believe that the infection is usually ascending for the following reasons: There are few recorded cases in males. I have seen none. Infection via the female urethra from soiling of the vulva is theoretically easy and likely. Infection borne by the blood would probably cause involvement of the true kidney structure, and not localize in the pelvis of the kidney. This would also be true in infections from contiguous structures. The recorded cases show no evidence of nephritis. My six cases, all in girls, were characterized in common by fever, usually ascribed at first to some other cause; pus in an acid urine; no bladder symptom, except in one instance, and prompt improvement and eventual cure by the use of ordinary antiseptics. In one case the onset of the original attack and of the relapses was initiated by rigors. In four of the cases there had been a pretty well-marked intestinal disturbance. In two cases there was an associated nasal pharyngitis. In none was there any evidence of nephritis.

Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis

DR. DAVID R. LYMAN, Wallingford: If we can put the lungs to rest, we can improve the chances for recovery. The beneficial effects that sometimes follow the appearance of a pleural effusion are noticed by some physicians, so that there is a growing tendency against the removal of such effusions, unless distress is caused to the patient. The compression of a lung limits the mobility, the flow of the blood and the absorption of toxic products through the lymph-channels. Putting the lung at rest also promotes the formation of connective tissues and tends to limit the process and finally control it. Nitrogen is the gas most generally used, as it is more slowly absorbed than either oxygen or sterile air, which were previously employed. There are two methods of performing the operation, the puncture and the incision method. The latter method, in my opinion, is the better but recent improvements in the puncture method seems to have made it the one of choice. Injury to the lung and the production of gas emboli are both obviated by means of the manometer. In no case can an attempt be made to inject the gas in the face of a negative reading by this instrument. From 300 to 500 c.c. may be injected at the first attempt, if no discomfort is experienced by the patient. It is better to increase the quantity gradually. The risk is by no means sufficient to militate against the use of the treatment.

DISCUSSION

DR. H. S. WAGNER, Hartford: In studying one hundred cases of tuberculosis I found that it was very difficult to decrease the râles and sputum; any line of treatment that will do this is worthy of being employed. Pneumothorax will accomplish this in certain cases.

DR. HENRY F. STOLL, Hartford: In these cases I use the manometer. It is the only thing to do, for if you have an adhesion you cannot strike the pleural cavity, and the hole is much larger. Of twelve cases in which I have resorted to compression, nearly all of the patients had disease in both lungs. I have used an aspirating needle of fair size with a comparatively short point.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

June, XXXIV, No. 6, pp. 317-380

1 *Pernicious Endocarditis. H. C. Gordinier, Troy, N. Y.
2 Refuse Disposal. W. T. Wooley, Schenectady, N. Y.
3 Ill-Effects of Exertion in Angina Pectoris, with Report of Case. F. L. Classen, Albany, N. Y.
4 Effects of Bacterial Disease of Dental Structures on General Health. N. K. Fromm, Albany, N. Y.

1. **Pernicious Endocarditis.**—No disease, Gordinier states, presents at times more difficulty in its diagnosis or is more often overlooked than pernicious endocarditis and this despite our advanced clinical and bacteriologic methods. Those he says who have fallen in its diagnosis can bear witness to this fact as well as to the surprises and feelings of chagrin that they have experienced as a result of the revelations of the post-mortem room. If one will even bear in mind the characteristics presented by various types of this disease, he will rarely err in the diagnosis. The most precise method of diagnosis is the bacteriologic, i. e., by making blood-cultures, microorganisms being present in the blood-stream in about 90 per cent. of the cases. Of course, when this method gives positive results, it means much, but when negative, it means little. Hence, in some cases, one is naturally forced to rely for a diagnosis on clinical symptoms and physical signs.

A temperature of a septic type with or without recurring chills and severe sweats, especially if the fever be unaffected by quinin, the presence of petechiae of the skin and mucous surfaces, or emboli of spleen, lungs, kidneys, brain, peripheral vessels, etc., together with the presence of endocardial murmurs whose quality changes from time to time, or the presence of new endocardial murmurs especially if diastolic in point of time, form a group of symptoms which are almost positively diagnostic. Frequent blood examinations will be sufficient to exclude the various types of malaria and assist materially in excluding typhoid. The blood-picture of this disease is one of a very severe secondary anemia with a moderate or great polymorphonuclear leukocytosis, the latter varying between 20,000 and 60,000.

American Journal of Medical Sciences, Philadelphia

July, CXLVI, No. 1, pp. 1-156

5 *Ankle-Clonus without Gross Disease of Central Nervous System. W. Tileston, New Haven, Conn.
6 *Rational Treatment of Surgical or Non-Pulmonary Tuberculosis. J. B. Hawes, Boston.

7 *Myocardial Hydrothorax, with Reports of Cases. J. M. Anders, Philadelphia.
8 Congenital Atresia of Duodenum. A. L. McDonald, Duluth, Minn.
9 *Recovery from Tuberculous Meningitis with Report of Cases. R. L. Pitfield, Philadelphia.
10 Intensive Study of Epidemiology of Pellagra. J. F. Siler, U. S. Army, and P. E. Garrison, U. S. Navy.
11 Diagnosis of Inflammation in Anterior Ocular Segment. R. F. Baer, Philadelphia.
12 *Epididymitis Due to Colon Bacillus. W. S. Reynolds, New York.
13 Rational Treatment of Tetanus, with Report of Twenty-Three Cases from Episcopal Hospital, Philadelphia. A. P. C. Ashhurst and R. L. John, Philadelphia.
14 Isolated Sclerotic Involvement of Mitral Valve. R. N. Willson, Philadelphia.

5. **Ankle-Clonus.**—Tileston says ankle-clonus may be found more or less frequently in a variety of conditions, without accompanying organic nervous disease. These conditions are: (a) Acute infectious diseases, especially typhoid; (b) chronic infections associated with marked toxemia, especially tuberculosis of the lungs in the third stage; (c) uremia shortly before and during the acute uremic seizure; (d) epilepsy immediately after the convulsion; (e) intoxication from certain drugs, e. g., scopolamin, ether and chloroform; (f) excessive fatigue; (g) exceptional cases of certain neuroses, viz., neurasthenia, hysteria, paralysis agitans; (h) psychoses in the stage of excitement; (i) chronic articular rheumatism. With the exception of joint disease, a toxic action on the nervous system may be assumed in all these states as the underlying factor in the production of clonus. This is obvious in the case of the infectious diseases and drug intoxications; in uremia, epilepsy and undue fatigue the presence of toxic products of metabolism may be regarded as probable, though not yet demonstrated, and even in hysteria and neurasthenia the action of toxic products in severe cases cannot be excluded. In the case of articular rheumatism a constant spinal irritation from the inflamed joint tissues is the probable cause.

In two autopsies on cases of phthisis, with clonus, no changes were found in the central nervous system. In the writer's case, however, inflammatory exudate was demonstrated about the posterior median artery in the posterior septum of the bulb. Clonus due to toxic states usually may be distinguished from that of organic nervous disease by the absence of spasticity and of other signs pointing to organic disease, and particularly by the absence of the Babinski and Oppenheim toe signs. An exception to the above rule is encountered after the use of hyoscin in medicinal doses and immediately after the epileptic attack, in both of which instances the Babinski and Oppenheim signs may be positive. The occurrence of ankle-clonus is of prognostic value in uremia, preceding at times the acute seizure. Ankle-clonus usually disappears a few days before death; otherwise its disappearance usually indicates an improvement in the patient's condition.

6. **Treatment of Non-Pulmonary Tuberculosis.**—This paper is a description of the author's clinic at the Massachusetts General Hospital. Tuberculin is administered once a week according to the well-known rules laid down by Trudeau. The initial dose is 0.0001 to 0.0005 mg., rarely 0.001 mg. This is gradually increased up to 50 to 100 mg. Increase of dosage is gaged by careful observation of clinical signs of a reaction—local, focal or constitutional. Since the time that this clinic has been devoted purely to extrapulmonary tuberculosis Hawes has had 209 patients under treatment and observation. Of these 209 patients fifty are in regular attendance every week or every other week, and are therefore not included; forty-three patients for one reason or another remained under treatment too short a time to allow of their being considered in this series. Each of the remaining 116 patients has been under more or less constant supervision, coming to report once a month or once in two or three months; the minimum period since attending regularly has been six months; in a large proportion of cases it has been two to four years since they were regular members of this department.

Of sixty cases of tuberculous adenitis, which includes young and old patients, those with merely one small broken-down gland and those with extensive bilateral processes on which many operations had previously been performed with no permanent benefit, forty-six have the disease arrested and are now well and healthy in every way, thirteen have been markedly improved, while in only two instances has the disease progressed despite treatment. There have been no deaths. Of the twenty-eight patients with ocular tuberculosis in some form nine have had the disease arrested, seventeen have been markedly improved, while in two cases the process has advanced. Of the twenty-eight remaining cases, which include various other forms of non-pulmonary tuberculosis, fourteen have had their disease arrested, twelve have improved, while in two the disease has progressed.

7. **Myocardial Hydrothorax.**—Of twenty-seven cases of hydrothorax due to heart lesions that have fallen under Anders' observation not less than sixteen (59 per cent.) were apparently caused by myocardial disease. In five of the sixteen cases clear and convincing indications of well-pronounced chronic interstitial nephritis were coexistent. There were doubtless instances primarily of arteriosclerosis to which both the myocardial changes and the nephritis were secondary. In eight cases only slight evidences of arteriosclerosis coexisted, so that the probabilities are that either the myocardial degenerative and inflammatory lesions were primary or the changes in the blood-vessels of the heart and other viscera were decidedly more marked than in those that are accessible. In nine cases, however (56 per cent.), the cardiac incompetency which led to the production of the hydrothorax was caused by chronic myocarditis, as will appear evident hereafter. In none of the sixteen cases were the clinical evidences of foregoing valvular sclerosis found. It is interesting to note that all of Anders' cases occurred in males.

The treatment of this form of hydrothorax Anders emphasizes must have the same objects in view as in the other varieties, and has reference to the removal of the transudate by tapping the chest, and, so far as possible, of the causative condition by hygienic and medicinal means. It is futile, as a rule, to attempt to get rid of the transudate by the exhibition of digitalis and other cardiac stimulants without first withdrawing the fluid by aspiration if it be considerable in amount. Anders has repeatedly observed that this class of drugs only tends to aggravate the dyspnea without either diminishing the amount of the transudate or increasing, to an appreciable extent, the urinary secretion. On the other hand, after removing the fluid by means of thoracentesis, cardiac stimulants often take hold and are of signal service in overcoming the dilatation of the heart and preventing a recurrence of the transudate. The myocardial insufficiency in these cases demands a resort to remedies that will strengthen the heart muscle, for example, digitalis, strophanthus and the like, independently of an increased blood-pressure although nitroglycerin should be combined with these drugs if the arterial tension be decidedly elevated. Rest is a most valuable adjunct in the treatment of the cardiac dilatation to which the hydrothorax is due; it must be, however, absolute and long continued. The use of saline laxatives carried to the point of rather active catharsis—three or four fluid evacuations daily—proved of decided service in a few of the cases. In five instances of the series reported a salt-poor diet was employed, with favorable effect, reaccumulation of the transudate being thereby noticeably delayed.

9. **Recovery from Tuberculous Meningitis.**—In view of the fact that recovery can take place in perhaps one in 200 cases, Pitfield urges that steps should be undertaken actively to facilitate such a possibility. The patient should be put in a quiet, airy, dark place and kept as free from annoyance as possible. Lumbar puncture should be performed at once. Pitfield had a patient, a boy, aged 5 years, from whose spine 40 c.c. of fluid were removed every other day for two weeks, with marked amelioration in the symptoms. Forced feeding through nasal tube, with milk and eggs, should be done. Morphin administered for pain and as a sedative, if respira-

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tion is not embarrassed thereby, and because free formaldehyd is found in the spinal fluid after the ingestion of hexamethylenamin, the latter drug should be given freely. Pitfield has found, after giving it for one day, that formaldehyd can be detected in the fluid with iron and sulphuric acid; and because Raw has reported recovery in two cases in which tuberculin was used, he would advocate one or two injections of this remedy.

12. **Epididymitis Due to Colon Bacillus.**—Reynolds has felt satisfied for some time that cases of chronic gonorrheal urethritis were prolonged by the presence of the colon bacillus and while it has not seemed to be especially virulent in these cases, it is often difficult to get rid of the germ; but when this is accomplished, Reynolds has found that the chronic urethritis improved. While it seems reasonably certain that these organisms, though perhaps under ordinary circumstances they are not very virulent, may quite frequently be the cause of inflammatory conditions of the urinary tract, still there are few cases recorded of epididymitis as a result of colon bacillus infection, such as gonorrhea and tuberculosis. The manner in which infection of the urinary tract is brought about is still a matter of discussion, and it is also unsettled as to whether it is necessary that a lesion of the intestinal tract be present before the organisms are liberated. In epididymitis occurring with some other diseases it seems clear that the epididymis becomes involved by direct extension through the ejaculatory ducts from the posterior urethra or from the prostate. Whether it would be possible for infection to take place in this way, supposing no inflammatory lesion to be present about the opening of these ducts, is questionable, though we find reports of cases of epididymitis in which colon bacilli were found in the urine, but no symptoms of urethritis were present. In such cases, Reynolds says, possibility of infection taking place in such manner must be considered. It is to be remembered, however, that a mild posterior urethritis or prostatitis may give rise to no marked symptoms, and it might be possible in some cases to overlook it unless a careful examination was made.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, LXVII, No. 426, pp. 1065-1304

15 *Medical and Surgical Treatment of Puerperal Eclampsia. E. G. Zinke, Cincinnati.
16 *Current Opinions Concerning Toxemia of Pregnancy. W. Pfeifer, Brooklyn.
17 Some Obstetric Observations Pertaining to Internal Secretion. W. H. Good, Philadelphia.
18 Complement Deviation by Corpus Luteum Antigens. J. T. Smith, Cleveland.
19 *Eclampsia a Toxemia of Possible Mammary Origin. P. Wilson, Washington, D. C.
20 Roentgenotherapy of Uterine Fibroids, Menorrhagia and Metrorrhagia. S. Stern, New York.
21 Sarcoma of Omentum. M. A. Tate, Cincinnati.
22 Newer Operations for Restoration of Pelvic Floor with Original Technic for Exposing and Uniting Injured Levatores Ani and Deep Transversus Perinei Muscles. B. C. Hirst, Philadelphia.
23 Formation of Terata. E. A. Schumann, Philadelphia.
24 *Extra-uterine Pregnancy and Its Subsequent History: Analysis of 147 Cases. P. F. Williams, Philadelphia.

15. **Treatment of Puerperal Eclampsia.**—Ziake has formulated the following definite plan of treatment for eclampsia. Whenever the condition of the patient and her environment permit, it is carried out in the order mentioned. If the patient has, or has had, convulsive seizures, twenty-five drops, or fifteen minims (1 c.c.) of Norwood's tincture of veratrum viride (especially prepared and kept for this purpose) are given hypodermically, and this dosage is repeated every hour until the pulse is reduced to 60 per minute or less. If within an hour the pulse should fall from 150 to 100 per minute, only ten drops of the veratrum are to be injected in the succeeding dose, no matter whether this be the second, third or fourth hypodermic. More than two or three full doses are rarely necessary to bring the pulse to 60. Veratrum viride thus administered is the most valuable remedy in the treatment of eclampsia. A copious enema of soap water serves to wash out the large intestine. The catheter is employed to empty the bladder; the urine is measured to learn the secretory power of the kidneys, then the urine is examined. As soon as the patient is able to swallow, a tablespoonful of Epsom salts, or some other saline cathartic, is administered per mouth. Stronger cathartics are only given when the saline proves ineffectual. (By this time, if the patient is not in a hospital, she should, if possible, be taken to one.)

Whether the patient is in a hospital or not, immediately after the above treatment has been administered, she is given a hot bath or hot pack, preferably the former. Neither the bath nor pack exceeds a half-hour in duration. The patient is then rubbed dry and placed in a warm, dry bed. The bath or pack is given not oftener than twice in one day. Ordinarily, but one bath or pack is necessary in twenty-four hours. The only food permitted is milk or broth, or both. Water or Fischer's solution may be freely administered. The latter may be given per rectum or, if the case be an urgent one, intravenously. Chloral per os or rectum is given if the patient is very restless. Of late Zinke has discarded the use of chloroform and morphin; ether or gas-ether is the anesthetic if operative measures must be employed. If the patient is at the end of the first stage of labor, and then only if the symptoms are grave, may forceps be employed to terminate labor. If the first stage is not complete or if labor has not begun and the patient has improved under the treatment above mentioned, the case is then left to nature until the first stage of labor is completed, when forceps may be applied. In cases of anemia, or asthenia from any cause, the normal saline solution or Fischer's solution is given, per rectum or intravenously.

With very little variation this has been Zinke's plan of treatment for the last ten years, during which time thirty cases of eclampsia were observed. Four mothers, 13.3 per cent., died. Fifteen, or 50 per cent., of the children were lost. The still high maternal mortality, 13.3 per cent., and fetal mortality, 50 per cent., in his last thirty cases, he says, is due to the fact that two of the mothers were moribund when first seen by him; one remained in profound coma after the first, another after the eleventh convulsion. The third died of shock and hemorrhage following an *accouchement forcé* performed by the doctor in charge of the case. The fourth died soon after the eleventh convulsion and a comparatively easy vaginal hysterotomy performed without an anesthetic. It is not claimed that the above mode of procedure will be invariably successful; but Zinke's experience impels him to believe that in those cases in which it fails, very little could have been expected from surgical intervention. Certainly in the presence of any condition (maternal or fetal) which makes the birth of the child *per viam naturalem* hazardous or impossible, abdominal or vaginal cesarean section or deep cervical incisions, each depending on the period of gestation and other circumstances, are justifiable operations. But in view of the evidence presented, it can but prove a serious error to maintain that an immediate interruption of gestation or termination of labor, by any surgical method in vogue, is the treatment *par excellence* in eclampsia. The good results obtained from strictly medical care in these cases far exceed the results accruing from all the surgical means proposed for relief from this disease.

16. **Toxemia of Pregnancy.**—Pfeifer claims that pregnancy in many cases is not physiologic and in all cases is so close to pathologic that slight additions make it frankly so; further, the profession and laity are slowly coming to this view. There will be fewer cases of severe toxemia if we pay closer attention to the minor ills of pregnancy and regard them as possibilities of future trouble. While the various types of toxemia are probably phases of one disease, no one definite etiology obtains in all cases. A predisposing cause being admitted, the pathogenesis of the toxemia cannot be stated with accuracy at the present time, beyond the unsatisfactory term, "disturbed metabolism." Usually the types are found to conform to one of two forms, hepatic or nephritic, with

the former often causing the latter. The urine systematically examined in toxemia for nitrogen partition where possible, as well as albumin, acetone and diacetic acid will aid in diagnosis and treatment in the early cases and possibly the later stages as well. Blood-pressure examination is of value in all stages of toxemia, especially that of the later months, and should be taken as often as the patient is seen. No rise can be regarded lightly and may be the first sign of trouble. The few serious cases in which pressure is low must be considered exceptional and do not negative the value of the test. The leukocyte count shows the resistance of the patient and the progress of the disease. Eye signs furnish an urgent indication for terminating pregnancy if seen early.

In treating the actual convulsive seizures, the sooner the uterus is emptied after the first convulsion, avoiding *accouchement forcé*, the better the prognosis for mother and child. Where the attendant is not capable of major surgery and the surroundings incompatible with clean work, conservative treatment (perhaps Stroganoff's method) will be wisest. Venesection in advance of delivery may not always be wise, as the additional blood lost in operative procedures plus the shock of the operation may prove too great. Venesection, no matter what the character or rate of the pulse, as proposed by one writer, seems unjustifiable.

19 **Eclampsia.**—Wilson believes that the symptoms and pathology of the parturient paresis can only be explained on the assumption that it is due to the circulation in the blood of a powerful toxin. The predisposition to the disease shown by animals which by breeding or management are converted into milk machines and the wonderful reduction in the mortality from 70 to 1 per cent. by a treatment which certainly tends to limit absorption from the udder, point conclusively to a disturbance in the early milk secretion as the origin of the toxin.

24. **Extra-Uterine Pregnancy.**—From Williams' study of 147 cases it appears that twenty-eight, 19 per cent. of the cases occurred in primiparous women. Twelve cases, 8 per cent., were illegitimate pregnancies. Forty-two cases, 30 per cent., had a history of previous abortion; in twenty-six cases, 28 per cent., the preceding pregnancy had terminated prematurely. The average interval after an intra-uterine pregnancy until the extra-uterine pregnancy developed was forty-five months. The average interval between the two attacks in the seven cases in which the condition was repeated was twenty-four months. Recovery was noted for each of the seventeen patients operated on in shock. Sterilization was performed eighteen times, in eight of these cases the opposite tube had been previously removed. Thirty cases, 52 per cent., of the fifty-eight cases whose subsequent history is known, did not develop any later pregnancies. Thirty-nine intra-uterine pregnancies have developed subsequent to the extra-uterine condition, twenty-eight ending at term, eight aborting while three are at present pregnant. The extra-uterine pregnancy was repeated seven times, a ratio to the intra-uterine pregnancies of 1 to 5.5.

Boston Medical and Surgical Journal

July 10, CLXIX, No. 2, pp. 37-72

25 *Typhoid Carrier Problem. C. L. Overlander, Boston.
26 *Treatment of Cardiac Edema with Alkali and Salt. L. H. Newburgh, Boston.
27 Cancer of Stomach. P. E. Truesdale, Fall River, Mass.
28 Some Relationships Between Orthopedic Surgery and Internal Medicine. H. W. Marshall, Boston.
29 *Eighteen Cases of Separation of Lower Femoral Epiphysis at Boston City Hospital. H. Binney and F. B. Lund, Boston.

25. **Typhoid Carrier Problem.**—Overlander is of the opinion that until some more easy, rapid and accurate method has been devised for determining the presence of the typhoid bacillus in the excreta, and for the subsequent treatment of the patient to rid him of them, detention of such persons in quarantine until successive negative findings, of exceedingly doubtful value, have been obtained, is a proceeding unwarranted viewed from either the standpoint of the patient himself, the health officer or the community. Such a procedure, involving a false confidence in their freedom from infected material, in those released would, in his opinion, be productive of more harm than good. It would be more practical, less arduous and better conserve the public health to regard each person recovering from typhoid as a potential carrier to carefully instruct such persons concerning this subject and the precautions they should take and if possible to forbid them to personally handle public food supplies. The application of any approved method for its eradication, however good it may be, must not be limited to any community, city, state or nation. It is a problem world-wide in its scope, and success will only be attained by the hearty cooperation of every individual in every civilized country.

26. **Treatment of Cardiac Edema.**—Newburgh claims that the administration of alkali or of alkali plus salt to patients with cardiac edema does not cause diuresis. But the administration of alkali plus salt to persons with heart disease may cause edema, and appears to be positively harmful.

29. **Separation of Lower Femoral Epiphysis.**—Owing to danger of subsequent interference with growth, the authors urge that absolute reduction and fixation at the earliest possible moment is of great importance in the treatment of this condition. Early and repeated roentgenograms they hold are necessary to control the completeness and permanency of the reduction. In simple cases, where immobilization in flexion fails to hold the fragment in correct position from the start, open reduction with the use of a small nail or bone-plate is indicated. In compound separation the same means of positive fixation is to be recommended. The foreign body should be removed soon after union has begun in order to avoid interference with growth. This should be done not later than the third week.

Bulletin of Medical and Chirurgical Faculty of Maryland Baltimore

June, V, No. 12, pp. 205-228

30 Local Specific Therapy of Infections. S. Flexner, New York.

Journal of Cutaneous Diseases, New York

July, XXXI, No. 7, pp. 457-540

31 Borderland of Dermatology. I. Dyer, New Orleans.
32 Important Drugs Used in Dermatology. M. L. Ravitch, Louisville, Ky.
33 Adhesive Plaster as Direct Dressing in Treatment of Wounds, Ulcers and Infective Conditions; Its Fulfilment of Bier and Wright Principles. M. B. Hutchins, Atlanta, Ga.
34 Dermatitis Repens of Lower Extremity. G. A. Pudor, Portland, Me.
35 Sulphur in Treatment of Syphilis. C. W. McMurtry, New York.

Journal-Lancet, Minneapolis

July 1, XXXIII, No. 13, pp. 359-384

36 Infant-Feeding in Theory and Practice. F. W. Schultz, Minneapolis.
37 Autopsy on Case in Which Both Rectus Muscles Were Cut Transversely. S. R. Maxeiner, Minneapolis.

Medical Record, New York

July 12, LXXXIV, No. 2, pp. 47-92

38 Metabolism and Circulation. A. Haig, London.
39 *Psychogenetic Disorders; Cases Seen in Detained Immigrants. H. A. Knox, Ellis Island, N. Y.
40 Thirty Heads in Mesial Section: Air Sinuses. R. H. Woods, Chicago.
41 *Physiologic Treatment of Talipes. J. Teschner, New York.
42 Influence of Fomites in Transmission of Disease. J. T. A. Walker, New York.
43 Present Status of Esophagoscopy in Cancer of Esophagus. R. Lewisohn, New York.
44 Negative Roentgenoscopy in Clinically Diagnosed Gastric Carcinoma. G. H. Stover, Denver.

39. **Psychogenetic Disorders.**—Psychogenesis, Knox states, is important in considering whether or not a given psychosis is founded on degenerative soil and hence whether the cause of a given alien's insanity existed prior to landing. Cases occur in which psychoses have arisen in healthy persons with apparently normal nervous endowment. Psychogenetic disorders are important to all who are identified with medicolegal problems since, as Glueck says, most of the psychoses of criminals are psychogenetic in character. A knowledge of psychogenetic

disorders is necessary in making accurate diagnoses and especially prognoses in traumatic and other organic mental diseases or supposed diseases of this nature.. Immigrants suffering from psychogenetic disorders should not be examined for defectiveness while in this state, and lay-workers with no knowledge of medicine, psychiatry or neurology cannot detect these conditions but would call such a patient "stupid" or rate him as "seven years old on the Binet."

41. **Physiologic Treatment of Talipes.**—Every brace and every stiffening of the shoe according to Teschner, prevents proper ankle motion and forces the foot into a position of eversion, and thus prohibits the use of the ankle joint in walking. He says that no shoe that can be constructed is curative. The shoe that should be ordered is one that will permit absolute freedom of ankle and toe action and should fit closely in the arch and heel. The width of sole must be sufficient to permit the entire weight-bearing foot to rest on the sole. The broad part of the inner side of the sole must be extended sufficiently backward to permit the entire ball of the foot to rest on it and the arch of the shoe must be short. Any support which may give temporary relief is vicious because it causes the weight to be borne on the inner arch, which is unphysiologic.

The anatomic and physiologic studies of the foot have positively demonstrated that the inner arch was never intended to bear weight, hence the use of an arch support is unphysiologic and fallacious. The condition of flat foot is due to a faulty gait, occasioned by many varied causes, all of which tend to faulty muscular action. The lack of tonicity and the lack of proper and concerted action of the muscles of the hip, thigh, leg and foot are the real causative factors, not excluding the pose of the trunk. The education and strengthening of the muscles will bring about a proper gait, and a cure will be effected. The power of balance on one foot is partially or totally destroyed by improper use. This, Teschner points out, can be readily taught and restored. When the full weight of the body is carried on the balancing foot the arch is considerably and visibly raised by muscular action. The elements of the proper gait are taught in conjunction with the acquired balance to eliminate the swaying of the body and to give a propulsive impulse to the step. The outward rotation of the thigh, and the pointing of the knee outward and upward must be overcome in order to insure the placing of the toes forward at each step. Teschner's treatment consists solely of foot and leg exercise.

Mississippi Medical Monthly, Vicksburg

July, XVIII, No. 3, pp. 45-64

45 Some Unusual Abdominal Cases. S. H. Hairston, Meridian.
46 Cancer of Breast. S. W. Johnston, Vicksburg.
47 Infant Feeding. L. F. Barrier, Greenwood.
48 Chronic Malaria and Malarial Relapse. C. C. Bass, New Orleans.
49 Diphtheria. S. R. Humphries, Jackson.

New York Medical Journal

July 5, XCVIII, No. 1, pp. 1-60

50 Action of Testicular Extract. A. J. Smith and W. J. Crocker, Philadelphia.
51 Relations of Adhesions and Intestinal Angulations Resulting from Enteroptosis, to Chronic Constipation. R. C. Kemp, New York.
52 Some Roentgenograms of Obscure Stomach and Intestinal Cases. S. Tousey, New York.
53 Torpor Rectl; Dyschezia. G. Singer, Vienna, Austria.
54 New Bioroentgenograph. I. S. Hirsch, New York.
55 Non-Tubercuious Apical Lesions. M. Fishberg, New York.
56 Early Diagnosis of Renal Tuberculosis. R. C. Bryan, Richmond, Va.
57 Luetin Skin Reaction in Syphilis. D. J. Kaliski, New York.
58 Need of Microscope in Treatment of Gonorrheal Urethritis and Prostatitis. J. Broadman, New York.
59 Plans for Reduction of Infant Mortality. E. J. Lederle, New York.

July 12, No. 2, pp. 61-108

60 Longevity and Rejuvenescence. I. L. Nascher, New York.
61 Wounds. S. Lloyd, New York.
62 Relation of Industry to Diseases of Heart and Lungs. J. M. Swan, Rochester.
63 Diabetes Mellitus: Treatment with Bacillus Bulgaricus Cultures. J. W. Beveridge, New York.
64 Prostitution in Japan. D. C. McMurtrie, New York.
65 Exophthalmic Goiter: Report of Case. S. J. Essenson, New York.
66 Anterior Poliomyelitis; Infantile Spinal Paralysis; Polioencephalomyelitis; Acute Central Infectious Paralysis. C. M. Hansen, Richmond, Va.
67 Neosalvarsan: Intramuscular or Intravenous? R. Ormsby, New York.
68 Interpretation of Pain in Surgical Emergencies. L. K. P. Farrar, New York.

Pennsylvania Medical Journal, Athens

June, XVI, No. 9, pp. 679-762

69 Relations of General Practitioner to Department of Health. T. B. Johnson, Towanda.
70 Infant Feeding. A. Hand, Philadelphia.
71 Caloric Value of Foods with Special Reference to Feeding of Children. C. B. Farr, Philadelphia.
72 Differential Diagnosis and Treatment of Puerperal Infection. R. R. Huggins, Pittsburgh.
73 Thrombosis of Mesenteric Artery. E. LaPlace, Philadelphia.
74 Acute Membranous Vaginitis in Pregnancy due to Enterococcus. G. E. Shoemaker, Philadelphia.
75 Successful Removal of Ulcerated Carcinoma of Breast by Halstead Method. J. D. Farrar, Philadelphia.
76 Carcinoma of Larynx, Operation by Thyrotomy, with Subsequent Hemilaryngectomy. G. W. Mackenzie, Philadelphia.
77 Results in Philadelphia Patients Discharged from Mont Alto in 1909, on Jan. 1, 1913. A. P. Francine, Philadelphia.
78 Prophylaxis and Treatment in Typhoid. C. Long, Wilkes-Barre.
79 Psychopathologic Phases Observable in Individuals Using Narcotic Drugs in Excess. C. C. Wholey, Pittsburgh.
80 Plea for Entire Removal of Enlarged and Diseased Tonsils. B. C. Gile, Philadelphia.

South Carolina Medical Association Journal, Seneca

June, IX, No. 6, pp. 138-168

81 Gunshot Wounds of Abdomen, with Report of Cases. L. Peters, Columbia.
82 Pellagra in Children with Observations on Eighty-Five Cases in Two Orphanages. H. W. Rice, Columbia.
83 Value of Serum Reaction in Diagnosis of Syphilis and in Detection of Recurrences. G. F. McInnes, Charleston
84 Some Often Overlooked Causes for Disturbances of Heart. T. E. Wannamaker, Cheraw.
85 Management of Toxemia of Pregnancy. R. L. Sanders, Anderson.

Surgery, Gynecology and Obstetrics, Chicago

June, XVI, No. 6, pp. 587-723

86 Orthopedic Principles in Treatment of Abdominal Visceroptosis and Chronic Intestinal Stasis. J. E. Goldthwait, Boston.
87 Thyroid and Parathyroid Problem. J. Halpenny, Winnipeg.
88 Chronic Intestinal Stasis. W. A. Lane, London.
89 Bibliography of Chylous Cysts of Mesentery. A. L. Benedict, Buffalo.
90 *Value of Complete Physiologic Rest of Large Intestine in Treatment of Certain Ulcerative and Obstructive Lesions of This Organ. J. Y. Brown, St. Louis.
91 First Successful Case of Resection of Thoracic Portion of Esophagus for Carcinoma. F. Torek, New York.
92 Prostatectomy; with Special Reference to Sequels. J. E. Moore, Minneapolis.
93 Nitrous Oxid and Oxygen Anesthesia. E. M. Prince, Birmingham, Ala.
94 Anesthesia and Anoci-Association. G. W. Crile, Cleveland.
95 *Inversion of Uterus. W. C. Jones, Chicago.
96 Pathology of Uterine Casts Passed during Menstruation. W. B. Bell, Liverpool.
97 Cases Illustrating Some Surgical Aspects of Persistent Meckel's Diverticulum. H. Drummond, Newcastle-upon-Tyne, Eng.
98 Acute Dilatation of Stomach and Its Treatment. O. J. Borchgrevink, Christiania, Norway.
99 Cervical Decidua. F. W. Lynch, Chicago.
100 Fate of Bone Grafts. F. J. Cotton and H. B. Loder, Boston.
101 Spinal Column As Affected by Traction and Hyperextension. N. Allison and A. O'Reilly, St. Louis.
102 *Silver Iodid Emulsion—New Medium for Skiagraphy of Urinary Tract. H. A. Kelly and R. M. Lewis, Baltimore.
103 Gall-Stone Ileus. J. S. Brown, Montclair, N. J
104 Further Consideration of Use of Corpora Lutea in Treatment of Artificial Menopause. C. A. Hill, Pittsburgh.
105 Removal of Strain from Round Ligaments While Healing, after Correcting Retroversion of Uterus. W. T. Coughlin, St. Louis.
106 Birth by Conduplicate Corpore. N. S. Heaney, Chicago.

90. **Value of Complete Physiologic Rest of Large Intestine.**—Brown describes his method of operating in these cases as follows: Through a right rectus incision sufficiently long for general exploratory purposes the abdomen is opened. The

cecum is at once sought and the large bowel is carefully examined from cecum to sigmoid. All pericolic adhesions are then severed, the appendix removed and the stump buried. The ileum is next severed between two clamps, close to the ileocecal valve. The distal ileum is tied off and buried as was the appendix. At a suitable part of the cecum a purse-string is tightly tied. A second purse-string of No. 1 chromic catgut is next placed. Under the loops of this purse-string three long catgut fixation sutures are placed. A stab-wound is next made at McBurney's point, through which a forceps is inserted. The catheter and fixation sutures are grasped in the bite of this forceps and pulled through the stab-wound. The peritoneal surfaces surrounding the catheter are next scarified, and the catheter is pulled through the stab-wound, carrying with it the three fixation sutures. The catheter is now slipped through the button, and the fixation sutures are threaded through the eyes in the button and tightly tied, thus closely approximating the serous surfaces of the cecum to the parietal peritoneum.

A stiff rubber drainage tube is next inserted into the proximal ileum and fixed with a double purse-string suture. The ileum is now brought out of the lower angle of the rectus incision. The parietal peritoneum is made to hug it snugly by a few catgut sutures, and the abdominal wound is closed in the usual way. Indications for restoring the continuity of the large bowel are improvement of the general condition and the return to normal of the discharge from the excluded large bowel as shown after repeated chemical, microscopic or culture-growth examinations of irrigation fluids passed through it, depending on the lesion present. This restoration should not be made too early, particularly in the ulcerative lesions of the colon. When the surgeon deems that the large bowel has sufficiently healed and desires to put this organ back into commission, this restoration is readily done by simply cutting out the anus at the lower angle of the rectus incision, closing its end with a purse-string suture, and making a lateral anastomosis of ileum to ascending colon, or switching the ileum into the sigmoid. Brown has never found any difficulty in restoring intestinal continuity; on the contrary the operation is simple and easy.

This report is based on the experience gained from ten cases so operated. Two were cases of chronic intestinal stasis, with obstructions due to pericolic bands and flexures. Both have greatly improved and are now comparatively well. Three operations were done for the relief of amebic dysentery. All were cured. One for ulcerative colitis with extensive involvement of sigmoid and rectum. This patient is now in good health. One case for extensive obstructive tuberculous colitis. This patient received great relief from the operation and lived in comfort for two months. Three were for late and inoperable malignancies of the rectum. One lived six months, one five months and the third patient, still living, nine months after operation, is comfortable and is in reasonably good health, so it will be seen that there was no mortality.

95. **Inversion of Uterus.**—In obstetrical inversion, Jones claims that the primary cause is uterine relaxation. The chief secondary factors are pressure on the fundus and traction on the cord. In inversion not obstetrical in orgin, uterine fibroid is almost the exclusive cause. Most cases are both acute and complete; in the complete ones, the most important point is the degree of contraction of the cervix. In inversion of gynecologic origin the causative tumor is of preeminent importance. In acute cases, the cardinal symptoms are hemorrhage, shock and pain. Later, the manifestations of a complicating infection may appear. In chronic inversion, the symptoms are those of marked uterine prolapse plus those of menorrhagia and metrorrhagia. This is made from the objective findings exclusively. In obstetrical inversions, diagnosis is almost always very easy. Vaginally, a large, soft, pear-shaped, bleeding tumor is found, with the placenta attached in about half the cases. Abnormally, no corpus is found, and in its place there is a cup-like depression. In gynecologic cases, the diagnosis of inversion due to a fibroid frequently is very difficult. The chief points are, first, the shortening of the uterine canal produced by inversion as compared with the lengthening caused by a fibroid; and secondly, the indentation produced by the inversion on the peritoneal surface. The mortality in acute cases in recent years has been about 35 per cent.; in chronic ones, about 6 per cent.

In all acute and in most chronic cases, manual reposition should be tried. In most of the former, if undertaken early, and in many of the latter, this procedure is successful. If it fails, repositors, etc., may be used, but only for a short time. If these are unsuccessful, one should resort at once to some operative method, the one of choice being colpohysterotomy. This operation stands preeminent in the treatment of difficult cases of uterine inversion, on account of the facility of its performance and its success in accomplishing the reduction of the inversion, and also because of the practically complete absence of any mortality. The uterine incision should be made at first through the cervix only, and later be extended as far into the corpus as necessary to accomplish reposition. In inversion due to tumor, the treatment is mostly that of the causative fibroid. After this is removed, if the uterus still remains, in about one-third of the cases spontaneous replacement occurs, while in the other instances reduction is accomplished usually without difficulty by non-operative methods.

102. **Silver Iodid Emulsion.**—A 5 per cent. silver iodid emulsion is safely and satisfactorily used by Kelly and Lewis to inject the bladder, ureters and renal pelvis for radiographic work. It casts as dark a shadow as does an equal amount of a 10 per cent. collargol solution. It is antiseptic, non-irritant, clean and inexpensive. Its concentration can be accurately determined and regulated. It possesses the great advantage of not being a proprietary preparation.

Vermont Medical Monthly, Burlington

June, XIX, No. 6, pp. 131-156

107 Carbonic Acid Snow As Used In Obliterating Angiomas; with Case Report. G. S. Foster, Manchester, N. H.
108 Study of Sensory Aphasia. W. L. Wasson, Waterbury.
109 Diagnosis of Diseases of Blood. B. H. Stone, Burlington.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 28, I, No. 2739, pp. 1357-1404

1 *Diagnosis and Treatment of Dysentery. C. P. Lukis.
2 Miners' Nystagmus. T. L. Llewellyn.
3 Amino-Acids and Sugars in Rectal Feeding. A. R. Short and H. W. Bywaters.
4 Experiences of Medical Adviser under Insurance Act. B. M. H. Rogers.
5 "Controlled" Use of New Tuberculin in Treatment of Pulmonary Tuberculosis. A. C. Watkin.

1. **Diagnosis and Treatment of Dysentery.**—Lukis states that Forster of India prepared his vaccine with the Shiga-Kruse bacillus, which he uses for all types of bacillary dysentery. He uses it in both acute and chronic cases, but in acute cases it is contraindicated from the fourth to the twenty-first day. After this period inoculation may be commenced with an interval of ten days between each dose. In both acute and chronic cases the dose recommended for an adult male is: first dose, 0.1 c.c.; second dose, 0.2 c.c.; third dose, 0.3 c.c.; fourth dose, 0.4 c.c. Females and children are given proportionately smaller doses. According to Forster these doses produce little or no negative phase and in fourteen days the immunity is considerably raised, while a course of four doses usually suffices to get rid of all bacilli and to prevent the patient from becoming a chronic "carrier." Antidysenteric serums may be either monovalent or polyvalent, but the highest degree of immunity is conferred when the Shiga-Kruse bacillus is used in their preparation. These serums are of the greatest value in the acute stages of the disease, especially if there be profound and prolonged toxemia unaffected by other forms of treatment.

The dosage depends on the strength of the serum used. But it is necessary to give it in large doses, the injections

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being made with the usual antiseptic precautions under the skin of the abdomen or flank. Thus the serum from the Lister Institute should be given in 20 c.c. doses twice, or even, in severe cases, four times daily. The interval between the injections should be six hours. They need not, as a rule, be continued after the second or third day, and the only untoward effects likely to follow are urticarial rashes and other anaphylactic phenomena such as pain in the joints, etc. Grave anaphylactic phenomena only occur when the interval between the doses is long or irregular. The remedy, therefore, is regular and systematic administration of the serum. When the serum treatment cannot be carried out the saline treatment is, in Lukis experience, the most useful. Indeed, in many early cases it suffices for a complete cure. Two drams each of magnesium sulphate and sodium sulphate dissolved in 1 ounce of water should be administered and then half doses of a similar mixture should be given every hour or every two hours until the motions become feculent, after which it is given every three or four hours for another twenty-four hours and then discontinued; but do not stop it too soon, otherwise the patient will still suffer from fecal retention, even though he be passing a large number of stools containing only blood and mucus.

Clinical Journal, London

June 4, XLII, No. 9, pp. 129-144

6 Salpingo-Oöphoritis. T. G. Stevens.
7 Auricular Fibrillation. C. E. Zundel.
8 Scope of Salicylate in Treatment of Acute Rheumatism. R. Miller.

June 11, No. 10, pp. 145-160

9 Non-Operative Treatment of Malignant Disease. T. J. Horder.
10 Causes and Treatment of Headache. J. A. Lindsay.
11 Case of Swelling and Ulceration of Tongue. L. McGavin.

June 18, No. 11, pp. 161-176

12 Treatment of Arteriosclerosis and High Tension. F. de H. Hall.

June 25, No. 12, pp. 177-192

13 Trend of Thought in Recent Pharmacologic Research. W. Whitla.
14 Absence of Abdominal Respiratory Movement As Indication of Pericarditis. W. E. Wynter.
15 Puerperal Insanity. W. H. Stoddart.

Indian Medical Gazette, Calcutta

June, XLVIII, No. 6, pp. 217-252

16 Years' Medicolegal Work in Calcutta Morgue, 1912 (Including Comparative Figures for Triennium 1910-1912). O. S. Moses.
17 *Agchylostoma Ceylanicum, a New Human Parasite. C. Lane.
18 Mild Epidemic of Jaundice. G. D. Franklin.
19 Spirillar Fever in Darjeeling District, 1912. A. M. Jukes.

17. **Agchylostoma Ceylanicum.**—In a batch of thirty prisoners individually examined and treated with Manson's mixture, Lane found that in three of them there were some ankylostomas present which were shorter and thinner than are adult specimens of *A. duodenale*. On subjecting them to microscopic examination it was evident that they were specimens of *A. ceylanicum*. *Agchylostoma ceylanicum* is a constant parasite of healthy domestic animals in parts of India.

Journal of Obstetrics and Gynecology of British Empire, London

May, XXIII, No. 5, pp. 265-352

20 *Ovarian Secretion. A. L. McIlroy.
21 *Menstrual Molimina. C. Chisholm.
22 *Localizing Peritonitis of Puerperal Origin. H. T. Hicks.

20. **Ovarian Secretion.**—The ovary has a dual function—the production of ova, and the elaboration of an internal secretion or secretions. It is of the nature of a ductless gland, carrying out its function independently of its vascular or nervous supply. The ovary controls the nutrition of the genital organs and mammae. Removal of both ovaries before sexual maturity causes an arrest in the development of the genital organs and mammae, prevents the onset of menstruation or pro-estrum. The infantile type is maintained and the secondary sexual characters are not well marked. Retardation of the ossification of the long bones has been observed. There is no effect on the growth and general nutrition (Carmichael and Marshall). Removal of both ovaries after sexual maturity causes atrophy of the genital organs and mammae, cessation of menstruation of pro-estrum, and increased deposit of fat. Removal is frequently followed by certain nervous phenomena characteristic of the menopause. Removal of both ovaries during early pregnancy causes abortion to take place. Removal of one ovary causes compensatory hypertrophy in the remaining organ independent of pregnancy or estrus. Abortion does not take place as a consequence of removal of one ovary.

The corpus luteum is concerned with the embedding and nutrition of the ovum and with metabolism. It controls the blood-supply of the uterus. The interstitial cells are increased in size during pregnancy and estrus and are concerned with the nutrition of the genital organs and the internal secretion of the ovary. Transplantation of ovarian tissue after castration prevents the occurrence of atrophy in the genital organs and the cessation of menstruation. Menstruation depends entirely on the presence of ovarian tissue. It is a preparation on the part of the uterine and tubal mucosa for the reception of a fertilized ovum and corresponds to the period of pro-estrum in animals. The menstrual discharge is the evidence of metabolic processes by means of which some unknown chemical substances are eliminated from the organism. Menstruation begins at puberty and ceases at the menopause, when the ovaries become atrophied. It ceases after removal of both ovaries, but can be made to recur by transplanting ovarian tissue into another situation. The correlationship between menstruation and ovulation is unknown. The nutrition of the uterus is dependent on the presence of ovarian tissue. Removal of uterine secretion has no effect on the ovaries.

Ovarian extracts have been found of use in the treatment of chlorosis, amenorrhea, obesity and menopausal symptoms. Much depends on the condition of the ovaries from which the extracts are prepared and the mode of preparation. Most clinicians agree that the extract of the corpus luteum has the most therapeutic value. Information as to the influence of ovarian secretion on metabolism is as yet unreliable. Ovarian secretion is said to prevent the onset of obesity, and to increase the respiratory interchanges. Most observers agree as to no change occurring after castration in the nitrogen metabolism. Several authors maintain that the ovaries have a marked influence on the excretion of calcium. Retardation of the coagulation period of blood has been found in diminished ovarian function.

21. **Menstrual Molimina.**—From a careful study of this subject by Chisholm it appears that the majority of girls commence menstruation painlessly. A number have discomfort, some occasionally, some regularly for a time varying from one hour to two days just before and with the commencement of the menstrual period. This discomfort is often slight in character. A few have more severe pain, either regularly or occasionally. A very small number, i. e., 1.8 per cent., are incapacitated. A small number, i. e., 1.2 per cent., have discomfort or pain for a longer period than one or two days during the whole time of menstruation. The discomfort in girls is most frequently local in character, and when there is serious general disturbance it is accompanied by severe local pain, and probably proceeds from some local abnormality, congenital or acquired. The best developed girls appear less likely to have menstrual disturbance. This freedom from discomfort is not affected by hard mental work carried on under healthy conditions.

22. **Localizing Peritonitis of Puerperal Origin.**—In treating patients with local peritonitis, following a septic puerperium, Hicks has come to the following conclusions: Simple drainage through Douglas' pouch should always be adopted when the local area of infection is within reach. Any attempt at radical removal of a pyosalpinx or an infected ovary is certain to be followed by a severe general septic condition which may be quickly fatal. The parametrium is nearly always also infected, and, although the broad ligaments may not contain pus, the lymphatics are in such a state that they

will pick up bacteria readily if opened in the course of removal of the tubes or ovaries. In cases in which simple drainage is not possible it is best to wait. The patient must be watched carefully for any signs of extension of the infection. The longer one waits, the less virulent will be the organisms, and, further, by waiting the natural protection against a general invasion may have time to develop. In all cases Fowler's position should be adopted. The complications to be feared if a radical operation has been undertaken are not the ordinary complications which are familiar to all surgeons engaged in abdominal work, but septicemia in its worst form.

Lancet, London

June 28, I, No. 4687, pp. 1787-1848

23 *Relation of So-Called "Influenza" to Bronchitis and Tuberculosis. A. J. Jex-Blake.
24 Dietetic Treatment of Gout. A. E. Garrod.
25 *Preparation and Use of Subgallate of Bismuth Gauze. E. A. R. Newman.
26 Two Cases of Vein-Grafting for Maintenance of Direct Arterial Circulation. J. H. Pringle.
27 Sensitized Vaccine in Acute Bacterial Infection. M. H. Gordon.
28 *Practical Method of Growing Acne Bacillus from Comedo For Preparation of Vaccines. T. H. C. Benians.

23. **Relation of Influenza to Bronchitis.**—Jex-Blake advises that one should be slow to content oneself with diagnosing any acute febrile catarrh of the respiratory system as "influenza" unless the disease is about in epidemic form, or unless the patient's discharges show a pure sulture of the bacillus influenzae. Unless these precautions are observed it is probable that the attack will prove to be an acute infectious catarrh due to some other microbe and not to the influenza bacillus. The microbes that do appear to cause "influenza" are the tubercle bacillus, the pneumococcus, *Micrococcus catarrhalis*, staphylococci and streptococci. To diagnose "influenza" rashly and readily entails a great risk of overlooking the early stages of pulmonary tuberculosis—a most serious matter for the health of the patient and for the credit of the medical practitioner. The outlook and prospects of recovery in tuberculosis of the lungs depends very largely on getting suitable treatment applied at the earliest possible moment, before the pulmonary lesions have advanced far.

Jex-Blake's figures show that in no less than 112 out of 416 unselected cases of tuberculosis of the lungs the onset of the disease coincided with an attack of "influenza"; the frequency with which this occurs shows that it cannot be a mere coincidence. It is obvious that to make a diagnosis of "influenza" when the case may very well be one of pulmonary tuberculosis—as, indeed, it appears to have been in 264 out of 1,058 instances—must give a false sense of security to both patient and medical man, and must make the latter prone to overlook the more serious disease. Yet the two can be distinguished from one another with certainty, if not by the physical examination of the patient, at any rate by the examination (or by repeated examinations, if need be) of the sputum for tubercle bacilli. In other words, one ought to make sure that pulmonary tuberculosis has been excluded before resting satisfied with the diagnosis of "influenza" or "influenzal bronchitis."

25. **Use of Bismuth Gauze.**—Subgallate of bismuth gauze has been tested for eight months in a hospital containing fifty surgical beds, and from the experience thus gained Newman says that it serves all the purposes for which iodoform gauze used to be advocated. It is definitely inimical to sapremic infections and quickly abolishes the fetor of foully septic wounds. He uses it for packing suppurating cavities and sinuses and dressing granulating sores, and finds that it checks and shortens suppuration. Its use on aseptic operation wounds is pointless. Compared with iodoform gauze, its advantages are summarized thus: Stability and consequent sterilizability; absence of odor; non-toxicity; no tendency to dust out; cheapness; equal if not greater efficiency; equally easily recognizable—an advantage it possesses over other bismuth gauzes.

The practical details of preparation are as follows: 1. Wash the gauze thoroughly in soap and hot water and rinse in several changes of clean water; dry. 2. Cut the dry gauze up into convenient lengths for preparation (pieces of 1 yard or 4 yards in length are convenient in practice), and ascertain the weight of one such length. The quantity of the salt is then calculated. 3. To get the exact quantity of fluid required saturate one such length in water, pressing it lightly to get rid of any great excess. Then squeeze out the fluid as completely as possible, collect and measure it. If too little fluid is used it is difficult to get the salt evenly diffused; if too much, the cloth drips, and some salt is lost, with an unnecessary waste of rather expensive materials. 4. Make an emulsion from the above data, mixing the salt with the glycerin first and then adding the spirit, stirring it briskly the while with a glass rod. 5. While still stirring it immerse the gauze, just moistened, as quickly as possible, and thoroughly knead it to get a uniform diffusion. To ensure this it is important that the gauze be previously just moistened; theoretically, spirit should be used for this, but in practice water does equally well and saves expense. 6. Hang up or lay out to dry. When dry fold longitudinally three times—this gives an eight-fold gauze—and roll up. 7. Sterilize and store in a dust-proof receptable. Incidentally, Newman says, all antiseptic gauzes may be prepared in this way, varying the ingredients and proportions at will. Plain water is only necessary for cyanid gauze or for soluble salts.

28. **Acne Bacillus Grown from Comedo for Vaccines.**—In the preparation of some twenty autogenous vaccines by his method Benians has only failed once to obtain a satisfactory growth of the acne bacillus. The method consists merely in growing the organism in a tube of neutral broth, the surface of which has been covered with about half an inch of sterile olive oil or sterilized ordinary lard. In practice a comedo is expressed into a sterile glass tube of small bore, the edges of which have been previously well rounded in the flame. The comedo is dropped into the broth and the oil or melted lard added with a pipet. The comedo should be made to sink to the bottom, otherwise the growth may cling to the oil on the surface of the broth. After twenty-four or forty-eight hours a slight turbidity of the broth is noticeable, and this is due to the presence of *Staphylococcus albus*; the growth of this organism, however, does not proceed any further.

After three or four days' incubation the acne bacillus growth begins to show as a granular deposit at the bottom and sides of the tube, or sometimes in the form of small granules clinging to the oil. Films of the deposit made at this time usually show a mixture of about equal numbers of cocci and bacilli. At the end of a week or ten days' growth the number of cocci is relatively quite insignificant. Films of the deposit now made show a few isolated and scattered cocci and large masses of bacilli mostly of a uniform size. Often there is a great preponderance of short oval or coccoid forms; these are readily differentiated from the staphylococcus by their shape and disposition. The bacilli clinging to the oil are generally larger and thicker than those in the deposit. The vaccine can be made up usually on the eighth or tenth day. The deposit is best removed with a Pasteur pipet; it readily forms a uniform emulsion when mixed with saline and shaken vigorously in a bulb for a short time. The bacilli should be thrown down in the centrifuge free from the broth medium; this supernatant fluid is then pipetted off and the bacteria reemulsified in saline.

Medical Press and Circular, London

June 4, XCV, No. 3865, pp. 593-622

29 Leukocytes As Aid To Diagnosis and Prognosis. A. Goodall.
30 Cradle of Pharmacy. F. M. Sandwith.
31 Life, Evolution and Instinct. C. A. Beck.
32 Amylene Carbamate—Synonym Aponal: A New Hypnotic. S. Hallows.

June 11, No. 3866, pp. 623-648

33 Late Puerperal Complications. A. Routh.
34 Diabetes of Hepatic Origin. Castaigne.
35 Three Cases of Reflex Cough. M. Collier.
36 Cradle of Pharmacy: Opium. F. M. Sandwith.

June 18, No. 3867, pp. 649-673

37 Acute Inflammation of Bone. A. H. Tubby.
38 Syphilitic Diseases of Joints and Bones in Children. C. Addison.
39 Treatment of Atrophic Rhinitis, Etc., by Doriform. W. Ibbotson.
40 Arsenic. F. M. Sandwith.

June 25, No. 3868, pp. 674-700

41 Curability of Diabetes. R. Saundby.
42 Enucleation of Tonsils. T. J. Faulder.
43 Roentgenotherapy of Hypertension. P. Rostaine.
44 Mercury. F. M. Sandwith.

Archives des Maladies de l'App. Digestif, Paris

June, VII, No. 6, pp. 301-360

45 Colitis due to Lambl's Flagellated Parasite. (Colite ulcéreuse due au Lamblia intestinalis. Perforation. Mort.) C. Fairise and C. Jacquot.
46 Therapeutic Action of Powders by the Mouth due mainly to their Adsorption of the Digestive Ferments. Wasserthal and R. Golfon.
47 Radiology of the Digestive Apparatus. R. Glénard.

Bulletin de l'Académie de Médecine, Paris

June, LXXVII, No. 22, pp. 573-580

48 Ethyl-Chlorid General Anesthesia. (Sur la chloréthylisation à doses faibles et continues par le procédé de la compresse.) J. Vanverts and C. Monod.

Bulletins de la Société de Pédiatrie, Paris

May, XV, No. 5, pp. 229-277

49 Appendicitis in Infants. (L'appendicite chez les tout petits.) M. Nageotte-Wilbouchewitch and L. Ombrédanne.
50 Treatment of Lateral Curvature of the Spine. (Traitement de la scoliose par la méthode d'Abbott.) J. Calvé, L. Lamy and Lance.
51 Anatomic Findings Four Months after Reduction of Congenital Dislocation of the Hip Joint. (Pièce de luxation congénitale réduite à l'âge de 20 mois.) M. Lance.
52 Indications for Heliotherapy. (Note sur les éléments d'appréciation des indications de l'intensité et de la durée utiles de la cure solaire dans les affections tuberculeuses de l'enfance.) d'Oelsnitz.
53 Masturbation Cause of Transient Albuminuria. (Sur une singulière albuminurie clinostatique.) H. Dufour and P. Muller.
54 Tuberculous Fetus Found in Uterus of Woman who had Died from Tuberculosis. (Transmission de la tuberculose de la mère au fetus.) H. Dufour and J. Thiers.

Journal de Médecine de Bordeaux

June 22, XLIII, No. 25, pp. 397-412

55 *Iodin Fumes in Local Treatment. (L'enfumage iodé.) Bargues.
56 Treatment of Tuberculous Joint Disease. (Immobilisation des arthrites tuberculeuses et héliothérapie.) J. Doche.

55. **Iodin Vapors in Therapeutics.**—Bargues reports his experience with the local application of iodin fumes according to the method described in THE JOURNAL, March 23, Aug. 10 and Nov. 16, 1912, pages 896, 488 and 1830. Bargues found the procedure too irritating for the urethra, and abandoned it after disagreeable experiences in two cases of urethritis. The iodin fumes dry up superficial wounds and arrest suppuration and pain, and consequently the method is excellent when a superficial antiseptic action is desired. He does not approve of keeping up the application after this result is obtained. Extremely useful during the stage of suppuration, when the tissues begin to heal the iodin fumes are superfluous and do actual harm. The method has proved of great assistance in syphilitic sores and erosions and various ulcerations on the genital organs and legs, especially old varicose ulcers. The fumes act only on the surface which they reach, and they do not penetrate into the tissues. Hence the local action is less intense than that of tincture of iodin.

Journal d'Urologie, Paris

June 15, III, No. 6, pp. 705-868

57 Parallel Rhythmic Ups and Downs of the Albuminuria, Blood-Pressure, Hydremia and Retention of Chlorids in a Case of Chronic Nephritis. (Rythme spécial de la rétention chlorurée par échelons, au cours d'une néphrite chronique avec syndrome chlorurémique.) F. Widal and R. J. Weissenbach.
58 Indications for Operative Treatment in Chronic Nephritis. A. Jousson.
59 Slight Strictures of the Ureters. (Etude clinique des rétrécissements de l'urétère.) M. Desnos.
60 Recurring Profuse Hematuria with Ureter Colic Only Sign of Cancer Large as a Cherry in Left Kidney. E. Jeanbrau and E. Etienne.
61 Tuberculous Process in Undescended Testicle. J. Ferron.
62 Multiple Large Renal Calculi Causing Absolutely no Symptoms; Three Cases. Pillet.
63 Posterior Urethroscopy. R. Henry.
64 Abortive Treatment of Gonorrhea. J. Janet.

Lyon Médical, Lyons

June 15, XLV, No. 24, pp. 1277-1332

65 Pneumothorax as Complication of Tuberculous Empyema: Three Cases. L. Bonchut and Gravier.
66 Snapping Knee. (Le genou à ressort.) Plisson. Commenced in No. 23.

June 22, No. 25, pp. 1333-1388

67 The Urea and Nitrogenous Bodies in the Blood in Typhoid. A. Morel and G. Mouriquand.
68 The Leukocytes and Disintegration of Nerve Tissue. E. Malespine.

Revue de Gynécologie, Paris

XX, Nos. 4-5, pp. 401-554

69 *Malignant Chorio-Epithelioma. R. Proust, X. Bender, A. Pollosson and H. Violet.
70 Incontinence of Urine and Prolapse of the Vagina. M. Muret.

69. **Chorio-Epithelioma.**—Proust and Bender discuss the pathologic anatomy and pathogenesis of chorio-epithelioma while Pollosson and Violet discuss the clinical aspect of this form of malignant disease. The former pass in review all the cases of which they could find record whether situated in the uterus, ovary or tube as well as outside of the genital apparatus or developing in teratomas. Pollosson and Violet's article has appeared elsewhere and was summarized in these columns July 19, abstract 37.

Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

May, VIII, No. 5, pp. 309-372

71 Spontaneous Delivery with Obstructing Fibroma; Three Cases. (Accouchement spontané dans quelques cas de fibromes "praevia.") Audebert and Fournier.
72 *Ovarian Tumors and Pregnancy. M. Muret.

72. **Ovarian Tumors Complicating Pregnancy.**—Muret has encountered a dozen cases of this kind; in seven the tumor was first noted during the course of the pregnancy; in three not until delivery was under way and in two during the puerperium. In the pregnancy cases two of the patients refused any operation and one of them during a subsequent pregnancy required an emergency operation for torsion of the pedicle. In three cases he removed the ovarian tumor by a laparotomy but in another case he was able at the sixth month and in another six weeks before term to push the ovarian tumor up and out of the way, so that it caused no trouble. All the children are living except one born at the seventh month. He advocates pushing the tumor up out of the way, the patient in the Trendelenburg position and under the influence of a general anesthetic, giving opium or morphin immediately afterward. This advice applies of course only when the ovarian tumor is not causing serious trouble and the pregnancy has reached the last months. If the tumor can thus be pushed out of the way, the patient must be kept under surveillance until term. If it proves impossible to push the tumor out of the way, he advises to wait until the end of the pregnancy or until delivery before attempting its operative removal. The tumor should also be pushed up out of the way, if possible, at term to permit delivery.

Semaine Médicale, Paris

June 18, XXXIII, No. 25, pp. 289-300

73 Bradycardia in Infectious Diseases. H. Roger.

Archiv für klinische Chirurgie, Berlin

CI, No. 3, pp. 573-844. Last indexed July 5, p. 68

74 *Mammary Cancer. A. Salomon.
75 *Radical Operation for Postoperative Peptic Ulcer in the Jejunum. H. v. Haberer.
76 *Operative Treatment of Intractable Constipation. V. Schmieden.
77 *Splenectomy for Malarial Disease of the Spleen. N. W. Koplylow.
78 Experimental Research on the Functions of the Choroid Plexus and Meninges of Brain. E. Goldman.

79 Brain, Spine and Nerve Injuries at the Seat of War. (Die Gehirn, Rückenmark- und Nervenverletzungen im Deutschen Rothen Kreuz-Lazarett in Belgrad.) R. Mühsam.
80 Arc Osteotomy. (Ueber bogenförmige Osteotomie.) E. Streissler.
81 Congenital Stricture of the Urethra. *(Angeborene Harnröhrenverengerungen.) B. Riedel.
82 *Deforming Osteochondritis in the Young. G. Perthes.
83 Operative Correction of Pseudarthrosis of the Tibia. A. Wittek.
84 *Operative Treatment of Embolism in the Lung. Schumacher.
85 *Direct Massage of the Heart. L. Wrede.

74. **Carcinoma of the Breast.**—Salomon writes from the clinic at Berlin in charge of Bier to relate the results of study of the anatomic details of cancers of the breast as compared with the clinical details and the ultimate outcome. He has examined about 3,000 specimens, but this article is based on 200 cases of mammary cancer with the ultimate outcome after operation. About 20 per cent. of the 108 patients traced to date were operated on only two or three years ago, the interval in the other cases was longer. Forty patients succumbed to local or regional recurrence, that is, 38.5 per cent., and 23.1 per cent. to internal metastasis, without local recurrence. A large number of typical cases of the various types of cancer are described in detail with illustrations. He made a special feature of roentgen-ray examination of the excised breast after it had been removed. The rays in many cases revealed that the excision had been carried far into sound tissue while in others they showed that the limit of malignant disease had not been reached. He emphasizes the practical importance of distinguishing between nodular infiltrating, diffuse infiltrating and the encapsulated types. The large alveolar soft cancers grow almost exclusively into the milk ducts and parenchyma of the gland and infiltrating cancers often invade the milk ducts. The roentgen-ray findings in the excised breasts demonstrate that at the very least the incision must be three finger-breadths from the extreme outer limits of the palpable new growth. The prognosis of the large alveolar forms of medullary cancers is about the same as that of solid cancers, namely, 40 per cent. recoveries, but the small alveolar soft cancers all proved speedily fatal in his experience (eight cases). The adenomacarcinomas formed about 9 per cent. of his total material, and a third were of the malignant adenoma type. They are distinguished by the long duration of the trouble, the rare metastasis in the lymph-nodes, the sharp delimitation, and in the papilliferous form by a blood-stained discharge from the nipple and hemorrhagic discoloration of the skin. The prognosis for this type is extraordinarily good, 71.5 per cent. recovering of his eighteen patients in this group. The prognosis is very unfavorable in what he calls infiltrating mammary cancer; strands extend from it linking it with the lymph-nodes in the axilla, and the lymph-nodes with each other. This form of cancer affects most frequently younger women, and it occurs in connection with pregnancy and lactation. In about half the cases the entire breast is invaded and in 25 per cent. recurrence follows in the other breast. The percentage of recovery is only about 9 per cent.

He found that from 10 to 15 per cent. of the true cancers were movable, which renders differentiation difficult. In such a case the entire tumor must be excised and examined under the microscope, as very often when cancer develops from chronic mastitis the actual malignant lesion is very small, and the main mass of the tumor consists of proliferating glandular tissue. The movable tumors are generally relatively benign, slowly growing growths with a tendency to encapsulation; 75 per cent. recoveries without recurrence for three years to date is his record for this type of cancer. On the whole, the cancers displaying the least anaplasia gave a favorable prognosis, the most anaplastic forms (namely, the small-celled soft and the scirrhous) give a grave prognosis. ("Anaplasia" is defined as the change in the cell forerunning its response to proliferative stimulus.) His total for all classes is recovery without recurrence for three years in 33.5 per cent. of the 200 operative cases.

75 **Postoperative Peptic Ulcer.**—Haberer has encountered three cases of peptic ulcer in the jejunum; they were the only ones in his 248 gastro-enterostomy operations. The one feature common to all the peptic ulcer cases was that there had been symptoms suggesting gastric ulcer for several years before the operation. This seems to suggest that the old stomach trouble had kept up a vicious circle predisposing to peptic ulcer later. In each case both shanks of the loop and the anastomosis in the stomach all had to be resected and the outcome was exceptionally good in all his cases. The reports in the literature of the discouraging effects of merely palliative treatment confirm the wisdom of the radical operation. In each case the gastro-enterostomy had been posterior, with a short loop; the peptic ulcer developed soon afterward in two cases and in the third not until after three or four years of relative health. The ulcer in each was on the efferent loop opposite the gastro-enterostomy, close to the attachment of the mesentery. The patients since the resection have been freed from all disturbance from this source.

76. **Operative Treatment of Intractable Constipation.**—Schmieden is delighted with the outcome of the method he applied to short-circuit part of the transverse and descending colon which was in a condition of pronounced atony and moderate dilatation. The patient was a man of 39. The mesentery of the large intestine was also congenitally abnormally long. Conditions thus invited Hirschsprung's disease, but Schmieden succeeded in short-circuiting the intestine while leaving approximately normal conditions in the excluded portion. This he accomplished by making an anastomosis between the sigmoid flexure and the middle part of the descending colon. The lower half of the colon was then drawn up and the top of the loop thus formed was sutured to the middle of the transverse colon. He gives illustrations showing how this provided three routes for the feces, (1) directly from the right half of the transverse colon at a right angle into the lower fourth of the descending colon which provided a straight outlet down into the rectum; (2) the stool could pass through the next to the lower fourth of the descending colon and out through the anastomosis with the sigmoid, likewise a vertical outlet, or (3) the stool could follow the natural route through the rest of the transverse colon, past the splenic flexure and down through the upper half of the descending colon to its anastomosis with the sigmoid flexure. Roentgenoscopy shows that all three routes are utilized to some extent although the main outlet is through the passage first reached by the stool. He thinks this technic is very promising.

77. **Splenectomy for Malaria.**—Kopylow has removed the enlarged malarial spleen in thirteen cases and has found records of 187 others in the literature, bringing to 200 the number of cases in which this operation has been done. The mortality for the total was 25 per cent., and three of his thirteen patients succumbed to the progress of lesions which could not be arrested by the removal of the spleen. Six of the patients were men and all were between 18 and 50. All the patients had traveled far to seek relief for their intolerable disturbances and when reexamined from six to twelve months after the splenectomy ten were found well, with full earning capacity. To this group he adds another workman of 25 who had had his spleen removed six years before and who has long been in good health and hard at work. Kopylow thinks that the spleen should be removed as a routine measure in malarial countries when it is very large, painful and immovable and persists thus, refractory to internal treatment. Also when the spleen is much enlarged and has become movable. With a wandering spleen the operation is comparatively simple and easy, while the pedicle is liable at any moment to become twisted with its train of dangers. Immediate splenectomy is of course imperative in case of rupture of the spleen or torsion. At the same time Kopylow advises to refrain from splenectomy if there is much cachexia, hydremia and the hemoglobin is below 40 per cent.; or if there is considerable cirrhosis and atrophy; if the general health is poor and there is trouble in the digestive and urogenital organs; also if there are very extensive adhesions especially with the stomach and diaphragm. This last was responsible for the death of one of his patients, the viscera being so welded together by adhesions

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that in removing them the stomach wall was injured and it perforated later with fatal peritonitis. The range of the mortality at different clinics is between 7 and 60 per cent. In one of his patients, a man of 30, the spleen extended to the symphysis and 5 cm. beyond the median line and caused severe and constant pain. It weighed 2,020 gm. and measured 33/18/8 cm.

82. **Harmlessness of Deforming Osteochondritis in Children.**—Perthes has the unusual task of exonerating the tubercle bacillus from responsibility for a certain hip-joint trouble of which it has been accused. The trouble is a destructive process in the interior of the head of the femur, and the joint itself is not affected. It thus differs from deforming arthritis. The cause seems to be some disturbance in the nourishment of the head of the femur, probably from some injury to the artery supplying it, possibly of traumatic origin. The first signs of trouble appear between the ages of 5 and 10 and only in one hip. The child does not complain of anything wrong and plays as usual, but the parents notice that he limps. The limp and gait may become that of unilateral congenital dislocation of the hip joint, but the ultimate outcome in Perthes' twenty-one cases and in the few similar ones in the literature shows that the parents can be reassured that the trouble is comparatively harmless and that the child will outgrow the limp and be left with no appreciable shortening of the leg. Nearly all the patients were boys. The limb can be actively and passively flexed as in normal conditions and there is no reflex rigidity of muscles, but the limb cannot be abducted and rotation is difficult. There are no tender points or crepitation but the gluteal muscles show some tendency to atrophy and the roentgen rays reveal softening or total destruction of certain areas in the bone substance of the head; the epiphysis as a whole flattens out and the head becomes deformed. The acetabulum gradually adapts itself to the distorted shape of the head and conditions clinically right themselves. Two of his patients were brothers, and Eden encountered the affection in a father and son, Calvé in a brother and sister and Küttner in three generations.

In twelve of Perthes' last series of fifteen cases treatment had been applied based on the erroneous diagnosis of tuberculous hip-joint disease. This might do no harm if there is pain, but it should not be kept up long for fear of atrophy of muscles. Extension permitting massage might be better on this account. In Perthes' cases pain was rare and slight. There was no history of known trauma in his cases but direct visual inspection in one case confirmed the non-tuberculous nature of the lesion and the non-involvement of the cartilage of the joint. In two of his cases five and thirteen years have elapsed since the first symptoms and the hip joint and gait seem quite normal at present. If the limb is held in an unnatural position this might be corrected, but whether by extension or by reduction under general anesthesia will have to be determined by further experience. He tried the latter method in one case with good effect. The relative harmlessness of this subchondral affection renders operative measures unnecessary.

84. **Operative Treatment of Embolism of the Lung.**—Schumacher compares four cases of pulmonary embolism in which he operated with three other cases in which no operation was attempted—all the seven patients dying, and then compares this material with the nine other cases he has found on record in which operative treatment was applied. He also reports experimental work along this line on dogs. He thinks we are justified in attempting to remove the obstructing embolus as Trendelenburg's and Sievers' patients lived afterward for thirty-seven and fifteen hours and Kruger's for over five days, succumbing finally to purulent pleuritis. But it is useless to attempt operative removal of the embolus if there is heart disease or wasting sickness. The special indications, technic, etc., are discussed.

85. **Direct Massage of the Heart.**—Wrede has applied massage directly to the heart of dogs and examined them afterward to learn the amount of injury thus inflicted on the organ. This with his clinical experience has convinced him that to start the heart to beating is far from being all that is needed—the center in the medulla must be started to functioning also, and this is accomplished by ample respiration. Consequently ample artificial respiration must be kept up systematically as being equally important with the massage of the heart. He is certain that the massage of the heart has failed in many cases simply because provision was not made for adequate ventilation of the lungs at the same time. In other cases the failure may have been due to the fact that the anesthetic could not be loosened up from its grip on some of the vital organs; in others perhaps to the fact that the interval between the stoppage of the heart and the starting up anew of the circulation was too long for certain organs; their vitality had been too long impaired. Wrede massaged the heart in one clinical case for ninety minutes before it started to beat naturally; the patient lived for three days and then died from the injury to his heart which possibly might have been avoided. One of the most important points about massaging the heart is to drive the blood into the coronary arteries so as to feed the heart itself. The harder it is to pump the blood into the aorta, the easier it flows into the coronaries. Hence everything should be done to increase the pressure in the aorta; epinephrin will aid in this and mechanical measures, such as lowering the shoulders, sequestrating the blood in the limbs with Esmarch bands, compressing the abdominal aorta and injecting a fluid into the aorta. Epinephrin drove up the blood-pressure almost invariably, and in some of his experiments even when the massage had been under way for an hour or more.

Berliner klinische Wochenschrift

June 16, L, No. 24, pp. 1097-1144

86 Life of Tissues Outside of the Organism. (Neue Untersuchungen über das selbständige Leben der Gewebe und Organe.) A. Carrel.

87 Non-operative Treatment of Cancer. (Chemotherapeutische Versuche an Krebskranken mittels Selenjodmethylenblau.) A. Braunstein. (Erfolgreiche Behandlung von Gesichtskrebsen durch Einstichelung von Eisenoxyduloxyd kombiniert mit Arseninjektionen.) H. Spude. (Erfolge der Mesothoriumbestrahlung bei Carcinom.) A. Pinkuss.

88 Present Status of Eclampsia. W. Nagel.

89 Clinical Bases for Normal Physical, Mental and Moral Standards for the Young. (Klinische Grundlagen der Beurteilung von normalen Kindern und Jugendlichen.) W. Cimbal.

90 Direct Absorption of Lecithin in Gastro-intestinal Tract. (Verdauung des Lecithins bei Erkrankungen des Magendarmkanals.) R. Ehrmann and H. Kruspe.

91 Flat-Foot Insoles. (Zur Technik der Plattfusseinlagen.) Wollenberg.

Deutsche medizinische Wochenschrift, Berlin

June 12, XXXIX, No. 24, pp. 1129-1184

92 Twenty-Five Years of the Public Health Service in the German Empire. (Die öffentliche Gesundheitspflege im Deutschen Reiche seit dem Regierungsantritt Kaiser Wilhelms II.) W. Buchholz.

93 Origin of Apical Tuberculous Processes. (Aerogene oder hämatogene Entstehung der Lungenspitzenphthise?) Bacmeister.

94 *Tubercle Bacilli in Blood-Stream. (Zum Vorkommen von Tuberkelbazillen im strömenden Blut.) F. Göbel, Brandes and C. Mau.

95 *Diagnosis of Tuberculosis of Both Kidneys. (Zur Diagnose der doppelseitigen Nierentuberkulose.) L. Casper.

96 Uranil Test for Uric Acid in the Blood. (Zur Verwertbarkeit der Uranilfällung für den Harnsäurenachweis im Blut.) A. Oszacki.

97 Removal of Set of False Teeth from Esophagus after Incising the Neck, without opening the Esophagus. (Entfernung eines Gebisses aus der Speiseröhre ohne dereß Eröffnung nach seitlichem Halsschnitt—Tracheotomia lateralis.) F. Franke.

98 *Resection of the Stomach. (Magenresektion.) A. Pers.

99 Indirect Transmission of Varicella. O. Lentz.

94. **Tubercle Bacilli in the Blood-Stream.**—Göbel found in the blood from dogs and other laboratory animals examined with the Stäubli-Schnitter staining technic the very same bodies which have been heralded as actual tubercle bacilli. He declares that they cannot be tubercle bacilli, neither can they be deposits of the stain. Brandes and Mau state that they found tubercle bacilli in the blood by the above technic in 45 per cent. of forty patients with surgical tuberculosis.

85. **Diagnosis of Bilateral Renal Tuberculosis.**—Casper used to teach that the presence of tubercle bacilli in the urine from both kidneys was an imperative contra-indication to nephrectomy. Later experience has convinced him that an inflamed kidney may permit the elimination of tubercle bacilli in the urine even when there are no tuberculous lesions in the organ. In a personal case reported the left kidney had been removed on account of tuberculosis eight years ago. Six years later a tuberculous process in the bladder was treated by being left in repose, the mouth of the ureter from the remaining kidney being transplanted in the skin. The urine from this kidney contained tube-casts and albumin and also tubercle bacilli virulent for guinea-pigs. The patient was regarded as doomed on account of the supposed tuberculous involvement of the one remaining kidney, but the urine has since cleared up and is apparently sterile now, two years later. Casper's retrospective explanation is that the bladder trouble had induced secondarily a nephritis, and this nephritic condition of the kidney had permitted the bacilli to pass into the urine. As there was a marked turn for the better after the exclusion and healing of the bladder, the nephritis subsided and the kidney became impermeable to the tubercle bacilli whose presence elsewhere in the body is beyond question. Analysis of this case and of similar ones reported by others seems to indicate that the presence of many red and white corpuscles in the urine along with albumin and tubercle bacilli is evidence of a destructive tuberculous process. Tube-casts are generally absent or very scanty and the functional capacity of the kidney is materially reduced even with an incipient tuberculous process. He consequently now states that the discovery of tubercle bacilli in the second kidney does not necessarily contra-indicate nephrectomy unless it is evidence of an active tuberculous process.

98. **Resection of the Stomach.**—Pers has done this operation in twenty-five cases on the presumptive diagnosis of cancer, but in nine instances the trouble was shown by the microscope to have been merely an ordinary ulcer. These patients all recovered and are still living after intervals of from eighteen months to eight years. Two of the cancer patients are also living after five and eight years; the others died in from four months to two and a half years. If there is a tumor in the pylorus region and cancer is beyond question, he advises resection of the stomach only in case the tumor is movable and the adjacent lymph-nodes are not too adherent to the pancreas and no metastases can be detected in the liver, mesenteric lymph-nodes, omentum or peritoneum and there is no pronounced arteriosclerosis. In dubious cases, the question as to ulcer or cancer must be very carefully weighed before proceeding to resection. Gastro-enterostomy is far less dangerous than resection while it may cure the most extensive ulcers. It must also be considered that in case the patient should die, it is difficult to console the family with the suggestion that malignant disease might have developed later, if the findings showed merely an ulcer. On the other hand, if the trouble should actually prove to be cancer, the proportion of recoveries after resection is still so small that it scarcely pays to risk it in the dubious cases. If the tumor is located elsewhere than in the pylorus region his experience shows that it is unwise to attempt resection in the unmistakable and extensive cases, but in the dubious cases with only a small process, he advises excision of the diseased area, either local excision or transverse resection of the stomach.

Jahrbuch für Kinderheilkunde, Berlin

June, LXXVII, No. 6, pp. 629-754

100 *Tetany in New-Born Infants. E. Kehrer.
101 Metabolism of Minerals in Infants. (Zur Kenntnis des Stoffwechsels, bes. der Mineralien im Säuglingsalter.) E. Müller and E. Schloss. (Die Ausscheidung der wichtigsten organischen und anorganischen Nahrungsbestandteile im Kot unter wechselnden Ernährungsbedingungen.) J. Takeno.
102 Experimental Scarlet Fever. W. N. Klimenko.

100. **Tetany in New-Born Infants.**—Kehrer describes six cases of tetany in new-born children observed by him during the past one and a half years. All except one of these recovered under calcium medication: 0.2 gm. calcium chloric was given from five to eight times daily. The favorable results of this treatment seem to show that the tetany is due to a deficiency of calcium salts.

Medizinische Klinik, Berlin

June 15, IX, No. 24, pp. 949-978

103 *The Changing Views in Regard to Surgical Tuberculosis (Neuere Gesichtspunkte in Diagnose und Therapie der chirurgischen Tuberkulose.) F. König.
104 *Abnormally High Blood-Pressure. (Vorkommen und Bedeutung arterieller Hypertension.) John.
105 *Intradermal Skin Reaction in Guinea-Pigs as Test for Tuberculous Nature of Effusions. R. Hagemann.
106 *Prophylaxis of Diphtheria. G. Jochmann.
107 *Autoserotherapy and Autohemotherapy. (Zur Behandlung mit Eigenserum und Eigenblut.) B. Spiethoff.
108 Technic for Measurement of the Pulse Curve. P. Reckzeh.
109 The Tuberculous at Health Resorts. (Die Tuberkulosebehandlung im Süden und speziell an der Riviera.) P. Schrumpf
110 *Rheumatic Polyneuritis. W. Schulhof.
111 *Sleeplessness. (Zur Therapie der Schlaflosigkeit.) O. Moszeik.
112 Syphilitic Sclerosis of the Aorta. (Ueber die Häufigkeit der syphilitischen Sklerose der Aorta relativ zur gewöhnlichen Atherosklerose und zur Syphilis überhaupt.) F. Lenz.

103. **Surgical Tuberculosis.**—The first point which König makes is that the only way to judge accurately of the efficacy of any method of treatment is to keep the patients for years afterward under supervision. This is particularly necessary for estimation of measures applied in tuberculosis; only when careful control is kept afterward of all the tuberculous given sanatorium or other treatment will the question be finally settled. The first requisite, however, is to exclude all persons from the statistics who are not actually tuberculous, and he emphasizes the difficulty of differentiating tuberculosis by clinical examination alone. Especially a tuberculous focus in a bone or joint requires other evidence than the x-ray findings before its tuberculous nature can be accepted beyond question. He insists on the importance of bacteriologic examination of the pus from an abscess of unknown origin, the moment the pus is obtained for the first time; after a fistula has developed the findings are much less instructive.

His experience with the skin tuberculin reaction (Pirquet) in children has confirmed its reliability for children; with adults the negative outcome of the test in some cases is often disconcerting. With a tuberculous focus in bone or joints, radical removal when practicable saves the organism all the work of disintegrating and absorbing the morbid products. The subsidence under radiotherapy of a tuberculous focus may flood the system with tuberculous products, as from an extremely severe course of tuberculin treatment and thus do direct harm. Even after excision, a course of mild tuberculin treatment may be indicated and may bring the desired complete turn for the better; the dosage, he remarks, is the weak point to date of tuberculin treatment.

König has not had very extensive experience with roentgenotherapy of surgical tuberculosis although Iselin's experience since 1908 in 800 cases of surgical tuberculosis encouraged him to try it occasionally. Iselin has learned to prevent x-ray burns, but the reports of unexpected by-effects in some cases, compelling amputation later of the limb, have caused others to pause before entering on this course of treatment which has to be continued over long periods to be effectual. König has tried to obtain equally good results by artificial heliotherapy at his clinic, as comparatively few children can be given the benefit of a year or so in the mountain sanatoriums with exposure to the mountain sunshine. König has realized somewhat similar effects with the ultraviolet rays generated by the mercury quartz lamp. Since last June he has been using it constantly both for local and general exposures, with a current of 220 volts and the lamp 30 or 40 cm. distant for local exposures, and from 80 to 100 cm. distant for general exposures. He uses the lamp thus for one or two hours a day. Some of the patients have had sixty single sittings. No injurious effects have ever been noted. The eyes and sensitive regions of the skin are protected with a black cloth. This method has been applied in fifty cases of surgical tuber-

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culosis. At first there is a powerful local reaction, sometimes with blistering, like a "glacier burn." Then the swollen lymph-nodes begin to decrease in size, fistulas to secrete more copiously and small ones begin to heal. Still more effectual are the general exposures. Six or more children are exposed naked to the rays all at once for a period up to two hours in this artificial mountain sunshine. The improvement in the general health was distinct in every case and sometimes surprising. One girl who had been twice operated on for tuberculous hip-joint disease, with numerous fistulas, and great edema of the vulva and legs regained her health completely under the quartz lamp exposures. The health of all the children improved, they gained in weight, lymph-nodes swelled and then subsided again, testifying to the revolution induced in the organism by the exposures. König's special aim in his article is to convince the general practitioner of the possibility of applying effectual treatment for surgical tuberculosis anywhere, without the necessity for long trips and sojourns away from home.

104. **Abnormally High Blood-Pressure.**—John declares that the measurement of the blood-pressure should be part of every routine examination. In this way we will be able to detect a tendency to an abnormally high blood-pressure before it begins to induce symptoms, and by taking the appropriate steps be able to keep the patients well within the danger line. Otherwise, emotional or physical stress is liable to bring on serious accidents. Symptoms of insufficiency on the part of the heart with an abnormally high blood-pressure are of much more momentous import than the same symptoms in the course of other heart affections. Only when the first symptoms are heeded and appropriate measures instituted, is it possible to keep in good condition our patients with unduly high blood-pressure and cardiac insufficiency. The first symptoms are mainly subjective, merely a little shortness of breath, general depression, in connection possibly with a family tendency to apoplexy or heart disease. When he encounters these symptoms with an abnormally high blood-pressure he keeps the patient in bed for two days restricting him to milk, given according to Karell, supplemented by a little of some digitalis preparation four times a day, keeping up the digitalis for two weeks or still longer. In case of emergency, he gives the drug by intravenous injection. Venesection also aids in lightening the task of the heart, and a tendency to obesity must be corrected. Occasional repetition of the milk course of dieting according to Karell is an excellent means to this end. Tobacco must be dropped entirely on account of the action of nicotin on the vessels which he has recently demonstrated anew in a long series of tests, keeping the blood-pressure under control. (The Karell method was described in THE JOURNAL, Feb. 17, 1912, p. 524.)

105. **Improved Technic for Rapid Diagnostic Inoculation of Guinea-Pigs.**—Hagemann has been making extensive comparative tests of various current means for diagnosing tuberculosis and found that none could be relied on implicitly. Römer called attention recently to the peculiar and characteristic inflammatory reaction in the skin which occurs when a tuberculous animal, and especially a tuberculous guinea-pig, is injected into the skin with a given small amount of tuberculin. Hagemann has found that this reaction occurs regularly when an effusion or other organic fluid from a human being infected with tuberculosis is injected into the skin of the tuberculous guinea-pig. About 0.1 c.c. of the suspected fluid is injected into the skin of the animal and the diagnostic reaction is evident in from eighteen to twenty-four hours. He applied this test 170 times with material from forty-eight patients including thirty-three with certain and three with dubious tuberculosis and twelve certainly free from tuberculous lesions.

In none of the non-tuberculous cases could a positive response be elicited while the findings were constantly positive in the tuberculosis cases with two exceptions traced to defective technic. In four cases the characteristic reaction was obtained when all other diagnostic measures failed to elicit a response. The findings were constantly positive with the serous effusion from a tuberculous joint effusion; every one knows the difficulty of a correct diagnosis in these joint cases as the lesion may be of traumatic origin, rheumatic, chronic inflammatory, syphilitic or neuropathic, and the course of the affection, the onset, the x-ray findings, etc., may all prove misleading and no tubercle bacilli can be discovered in the effusion. But if it is of tuberculous origin it contains products of the bacilli and these will elicit the specific reaction if injected into the skin of a tuberculous guinea-pig. It is in this class of cases that the method is most instructive. Hagemann has applied the test in twenty-three cases of knee effusions and none of the non-tuberculous cases gave a positive response. One of the eight certainly tuberculous cases gave a negative response. The reaction is thus conclusive only when it is positive, and if the guinea-pigs are in far advanced tuberculosis they are not capable of the reaction. He tests the guinea-pig first with 0.2 c.c. of tuberculin in 0.1 c.c. salt solution. He infects the animals by an intraperitoneal injection of 1/10 or 2/10 mg. of tubercle bacilli. They are ready for the test in from four to six weeks. The typical reaction to the intracutaneous injection of the suspected fluid is a swelling developing in eighteen or twenty-four hours and about the size of a silver quarter or more. In the center is a purplish discoloration surrounded by a china-white ring and this in turn by an area of inflammation. With a less pronounced reaction there may be no central discoloration, or there may be an atypical mild response which leaves a nodule in the skin perceptible for ten days. The inflammation which follows injection of pus cocci differs so completely that it cannot be confused with the typical response to injection of tuberculous material. Hagemann undertook this work with the aid of a special appropriation for scientific research, and thinks that the above simple technic will be found highly instructive and reliable while it usually permits exact differentiation in less than twenty-four hours.

106. **Prophylaxis of Diphtheria.**—Jochmann states that at the Virchow hospital it was found possible to keep nearly all the diphtheria patients until no further diphtheria bacilli could be found in their throats on three reexaminations. Most of them were free from the bacilli in two or three weeks and 75 per cent. by the third or fourth week. This proved a great gain in prophylaxis, and a further advance was the use in prevention of diphtheria antitoxin obtained from cattle. No serious by-effects were noticed in the seventy-nine persons thus given prophylactic injections, including thirty-two young infants, seventeen in the second year, twenty-three older children and seven adults. None of those injected developed diphtheria later, and he thinks that this cattle antitoxin will solve the question of dodging anaphylaxis.

107. **Autoserotherapy and Autohemotherapy.**—Spiethoff reports striking success in a number of cases of various infectious affections, prostatitis, eczema, suppurating inguinal lymph-nodes, etc., which he treated by reinjecting some of the patient's own serum or blood. He draws the blood directly through a wide cannula into the syringe and then introduces a narrow cannula inside the first one, and reinjects the blood or serum at once through this second cannula. He has applied the measure in some cases five days in succession, reinjecting each time 20 c.c. of the patient's own blood. The reaction seems to be the same to the blood as to the serum; local reactions develop and changes in the white corpuscles are noted.

110. **Rheumatic Polyneuritis.**—Schulhoff states that this affection is a well defined clinical entity; it may be the work of the bacilli or the result of toxemia or exposure to excessive heat or cold. The symptoms are sensory, motor and trophic, the first named being the most pronounced and often leading to the diagnosis of neuralgia or gout. The pains commence insidiously, at first merely a sensation of tension in a limb or over several nerve areas. At first there are intervals free from discomfort or pain but the pains gradually become more continuous and increase in severity on changes in the weather or with fatigue. The nerves are not tender

except at the emerging points of the main trunks. The pains are described as rheumatic or sharp, almost lancinating, and the muscles may be felt contracted in the area. There are also paresthesias, a smarting of certain areas of the skin, especially in the domain of the ulnar nerve, over the sacrum, on the front of the thigh or on the fingers. There are liable also to be sensations of cold, formication, pain on exposure to cold, and sometimes extreme hyperesthesia, so that any touch, even the weight of the lightest bed clothes, induces unbearable pain. The motor disturbances are a slight or severe paresis in the domain of the nerve involved, when the affection has lasted a long time. At first the patients complain merely of weakness and that they tire readily. There may be isolated spasmodic contraction in the muscles innervated by the nerves suffering from the neuritis; if the trouble is of long standing there may be atrophy. In case it affects the cutaneous nerves alone there may be a tendency to gooseflesh, with hyperesthesia and much itching. Treatment with thermal baths, Zander exercises and galvanic electricity is often promptly and surprisingly effectual.

111. **To Fight Sleeplessness.**—Moszeik describes a method with which, he says, one is almost certain to woo slumber with success. On going to bed you assume a comfortable attitude in which every muscle is relaxed but not the attitude in which you are accustomed to go to sleep, but something resembling it. Every movement, coughing, yawning, are strictly repressed, especially the desire to turn over. The same attitude is maintained without change, constantly resisting the longing to move or turn over. As a rule by the end of fifteen or twenty minutes of this persistent maintenance of the same attitude, you find yourself growing very drowsy and then, just as the desire to turn over becomes absolutely uncontrollable, you turn with the least possible effort and assume the position in which you habitually go to sleep, and natural sleep follows at once. This method seldom fails, he states, and should be given a thorough trial, at least, before resorting to a drug to bring sleep.

Münchener medizinische Wochenschrift

June 10, LX, No. 23, pp. 1241-1304

113 *Face Presentation. (Ein Handgriff zur Umwandlung der Gesichtslage.) W. Zangemeister.
114 Determination of Cholesterin in Blood and Organs. (Ueber kolorimetrische Bestimmungsmethoden: Die Bestimmung des Gesamtcholesterins im Blut und in Organen.) W. Autenrieth and A. Funk.
115 *Fistula and Perforation at Base of Skull. (Ueber Mittelohrfisteln und Perforation an der Schädelbasis, Zysten und abnorme Knochenbildungen daselbst.) R. Riedel.
116 *Gall-Bladder Symptoms in Typhoid. (Ueber pseudo-cholezystitische Symptome bei Typhus.) H. Benecke.
117 *Treatment of Threatened Gangrene of the Fingers. (Zur Therapie der Raynaudschen Krankheit.) R. Schreiber.
118 *Spiral Incision in Treatment of Varices. H. T. Gelnitz.
119 Serodiagnosis of Pregnancy. (Verwendbarkeit der Abderhaldenschen Reaktionen bei der Serumdiagnose der Schwangerschaft.) F. Maccabruni.
120 Camphorated Oil in Peritonitis. (Kampferöl bei Peritonitis und Douglasabszess.) A. Blecher.
121 Quack Advertisements. (Grenzen der Reklame.) Lingel.

113. **Management of Face Presentation.**—Zangemeister gives an illustration which shows at a glance the simple means with which he transforms a face into a head presentation. The gloved hand on the side toward which the face is turned is introduced with the fingers extended; the thumb is run into the mouth and the chin is pressed upward with the thumb while the tips of the fingers on the chest press the chest backward. At the same time the other hand on the abdomen outside presses the breech over to the front, toward the child's abdomen. The hand inside the uterus is of course on the side on which the uterus bulges least, as the top of the head and the breech protrude on the other side. Another advantage of the procedure is that it can be done by one person, using both hands. He has applied it in five cases and in three the presentation was changed without the slightest difficulty; in the others a meningocele or other deformity interfered. In conclusion he discusses the various indications for changing the presentation, emphasizing the contra-indications, namely, danger of impending rupture of the uterus, placenta praevia, true conjugate less than 7.5 cm., and all conditions requiring immediate artificial delivery.

115 **Malformations at Base of Skull Responsible for Spreading of Ear Disease.**—Riedel gives a number of examples to show the clinical importance of unsuspected openings and other malformations at the base of the skull as responsible for fistulas and cysts in this region. One woman of 49 had suffered for ten years from occasional pains behind the left ear and back of the tonsil, the attacks terminating with the discharge of pus into the mouth. The intervals gradually became shorter until finally the discharge was observed every three or four days but no source for it could be discovered. An operation revealed several malformations, shown in an illustration, but no recess containing pus was detected. A bean-shaped piece of cartilage was found attached to the musculature of the jaw and was removed and the patient was cured of all disturbances.

116. **Pseudocholecystitis in Typhoid.**—Benecke reports seven cases of typhoid in which pain developed in the gall-bladder region, but there was no jaundice and no radiation to the back. The course of the cases apparently excluded actual cholecystitis, and the trouble was evidently due to acute hepatitis, changes in the muscles from hemorrhage or degeneration, or pleurisy; in four of the cases there was a pleuritic effusion on that side.

117. **Treatment of Raynaud's Disease.**—Schreiber applied Noesske's method of slitting the tip of the finger in a severe case of Raynaud's disease, but found that the apparent "cure" was only transient; after three months the fingers were in as bad a condition as before. He then treated the woman with local hot-air douche massage—not the superheated air box for fear of burning the tissues. The effect was surprisingly good, as also in a second similar case. The Noesske method should be reserved for crushing injuries of the hands or felon; his experience shows that the effect is liable to be only transient in chronic disturbance in the circulation.

118. **Spiral Incision in Treatment of Varices on the Legs.**—Rindfleisch's method, a spiral incision down to the fascia, carried around the leg, was applied by Geinitz in six cases of chronic varicose ulcers two years ago. The immediate results were not very encouraging. Edema developed in all but one case and there was a little pain on using the leg at first, healing required several weeks, and the scar left was disfiguring. Recent re-examination of the patients, however, has convinced him of the value of the method. The scars are now level with the skin; there is no tendency to edema, and the old varicose trouble is entirely cured. In cases of severe varicose ulcers and diffuse enlargement of the veins, he thinks this method has proved its efficacy.

Wiener klinische Wochenschrift, Vienna

June 12, XXVI, No. 24, pp. 961-1008

122 Indications for Artificial Pneumothorax with Pulmonary Tuberculosis. H. Schur and S. Plaschkes.
123 The Lipoid Content of the Blood, especially in Tuberculosis. M. v. Eisler and M. Laub.
124 Connection Between Asthma and Tuberculosis, and Tuberculin Treatment of Asthma. O. Frankfurter.
125 Diagnostic Skin Reaction in Tertiary Syphilis. II. (Ueber eine klinisch verwendbare Kutanreaktion auf tertiäre Syphilis.) E. Klausner.
126 The Refractometer in Physiologic Chemistry. S. Serkowski and W. Kraszewski.
127 Affinity of Organs for Salvarsan. II. (Zur Organotropie der Salvarsanpräparate.) K. Ullmann. Commenced in No. 23.

June 19, No. 25, pp. 1009-1052

128 Mechanism of Serodiagnosis of Cancer. (Herkunft der die Karzinomzellen beeinflussenden Serumbestandteile.) E. Freund and G. Kaminer.
129 *Etiology of Ozena. (Beziehung des Bacillus Perez zur genuinen Stinknase.) G. Hofer.
130 *Psychotherapy in General Practice. R. Hatschek.
131 *Attacks of Pain in the Hip Joint of Children. (Die koxalgische Attacke im Kindesalter.) F. R. v. Friedländer.
132 Chemical Constitution of the Eosinophil Granules. H. Müller.
133 *Dietetic Influencing of Size and Weight of Child at Birth. (Das Gewicht des Neugeborenen und die Ernährung der Mutter.) J. Bondi.

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129. **Perez Bacillus Responsible for Ozena.**—Hofer states that more than ten years have elapsed since Perez in Buenos Aires called attention to a cocco-bacillus which he had cultivated from the nasal secretions of ozena patients. It takes the usual anilin stains but not the Gram, does not liquefy gelatin nor coagulate milk, but induces ammoniacal fermentation in urine and emits the typical fetid odor of ozena. Perez is now ambassador from Argentina to Vienna, and has applied to the Vienna experts to test the claims of this bacillus. Hofer reports the results of extensive research at two of the scientific institutes, all of which has amply confirmed Perez' statements. It seems to be established beyond question that this bacillus can be found in the majority of cases of ozena, and induces in animals a nasal affection apparently identical with human ozena. He regards it as a great advance in our knowledge of ozena as bacteriologic examination will permit the diagnosis in the early stages and possibly lead to effectual prophylaxis and vaccine therapy. (See Vienna Letter, p. 209.)

130. **Psychotherapy.**—Hatschek discusses the various points useful to bear in mind in ordinary psychotherapy and then passes judgment on Freud's methods of psychanalysis which, he thinks, have little scientific basis. He also mentions a few cases in which the application of Freud's method did great harm. In one case an elderly neurasthenic had his condition materially aggravated by self reproaches on account of masturbation in youth. In another case the exploration according to Freud of ideas of incest nearly led to suicide. He adds that the Freud method is undergoing great changes nowadays and something practicable and useful may develop from it, not limiting the motives to sexual impulses. Aside from the Freud system, Hatschek declares that systematic psychotherapy, built up on the principles of Dubois, is extremely important, ranking in neurology only after operative and antisyphilitic measures, and surpassing both by the extent in which it can be applied. It requires great perseverance, much patience and a special sympathy on the part of the physician and a certain degree of optimism. He adds that the world's progress can be credited to the optimists. In the same way in medicine, and here perhaps especially in the field of neuroses, it is particularly the natural optimists among physicians who benefit their patients most.

131. **Pain in the Hip-Joint in Children.**—Friedlander calls attention to attacks of coxalgia in children, one type of which is distinguished by transient spastic fixation of the joint, paroxysms of neuralgia in the sciatic and crural nerve and the abnormally high position of the trochanters on both sides. He explains the condition as the juvenile prelude to senile hip-joint disease; the pain is constant and of great diagnostic importance as it distinguishes the trouble from tuberculous and metastatic coxitis; at least he has never observed this constant neuralgia in any of his cases of tuberculous and metastic hip-joint disease. There is still another form of pain in the hip-joint; it affects mostly children about 6 years old and commences suddenly with severe pains in the hip-joint and inside of the thigh, occasionally with pain in the knee. There is no atrophy of muscle but sometimes there is a history of mild trauma or recurring tonsillitis. After a few days the storm has entirely passed over but the attacks may return and may affect both hip-joints alternately. He thinks that this ephemeral coxitis is a manifestation of the mildest form of osteomyelitis, as reexamination of the children later shows that the thigh on this side is longer than the other. There seems to be something stimulating it to exaggerated growth. In one case the limb became 3 cm. longer in the course of four years; in another there was a difference of 0.5 cm. by the end of five weeks. He has encountered the same trouble in other joints.

Pain in the hip-joint is always suspicious of tuberculosis when there is considerable atrophy of muscles, undue length or shortening of the leg, enlargement of the joint and lymph-nodes around, and a change in the child's physical and psychic bearing has been noted for a little while. On the other hand when there is no atrophy of muscle but the trochanters are abnormally high and the sciatic and crural nerves are painful while the joint itself is not tender and there is contracture of the flexor and abducting muscles, with concentric limitation of the excursions, there is every reason to assume some irritation of the joint from static conditions. If, however, the hip-joint becomes contracted with abduction or slight adduction, and there is pain; if the joint is slightly swollen and tender and its movability somewhat disturbed, but no involvement of lymph-nodes or atrophy of muscle, we can explain the trouble as an ephemeral coxitis. The probability of this is enhanced when there has been preceding tonsillitis, and when the attack speedily passes over. The assumption is confirmed later by the discovery that the leg is longer than its mate.

133. **The Weight of the Fetus and the Nourishment of the Mother.**—Bondi has been conducting extensive research along this line, both clinical and in study of animals, and he has become convinced that the fetus draws from the mother what it needs for its growth regardless of the condition of nourishment of the mother. It behaves as independently in this respect as a malignant tumor, just as a cancer develops without regard to the condition of nourishment of the individual. He believes that the same conditions prevail in respect to lactation. Fat, well nourished mothers are often poor milkers, while thin, badly nourished women often have plenty of good milk. After excluding the condition of nourishment of the mother as a factor for the development of the fetus, he discusses the three influences which do affect the size of the child at birth: (1) heredity; (2) older women generally have larger children; (3) the influence of the glands with an internal secretion both in mother and fetus. His practical conclusions are that it is impossible to influence the size of the child by dieting the mother more than to keep her in the best normal condition of health.

Zeitschrift für Kinderheilkunde, Berlin

VIII, No. 1, pp. 1-110. Last indexed July 12, p. 158

134 Dietetic Treatment of Eczema in Children. H. Finkelstein.
135 Test for Human Milk. (Neue Methode zur Unterscheidung von Frauenmilch und Kuhmilch, zugleich ein Beitrag zum Studium des lipolytischen Milchferments.) H. Davidsohn.
136 The Phosphates in the Urine of Bottle-Fed Infants. G. Kaminer and E. Mayerhofer.
137 Fluctuations in Albumin Content and Electric Conductibility of Infants' Blood. O. Hagner.
138 Agglutination of Colon Bacilli Has No Diagnostic Significance in Infant Pathology. H. Zeiss.
139 Post-diphtheric Hemiplegia. W. H. Leeds.

Zentralblatt für Chirurgie, Leipsic

June 21, XL, No. 25, pp. 993-1032

140 Technic for Operations on Wrist and Palm. (Der ulnare Längsschnitt, eine Schnittführung für Operationen im Bereiche der Volarfläche des Handgelenks und der Hohlhand.) G. v. Saar and R. Schwamberger.
141 Technic for Immobilization of Fractured Ankle. (Behandlung der Frakturen des Unterschenkels, namentlich der typischen Knöchelbrüche mit dem Filzschuh und dessen Kombination mit dem Fränkel'schen Geh-Gipsverband.) M. Többen.
142 Technic for Ample Access to Hypophysis Cerebri. W. N. Nowikoff.

Zentralblatt für Gynäkologie, Leipsic

June 21, XXXVII, No. 25, pp. 917-956

143 *Puncture of Fontanel for Subdural Hematoma from Birth Traumatism. (Die diagnostische und therapeutische Fontanellaspiration des subduralen Geburtshämatoms der Neugeborenen.) K. Henschen.
144 Sarcoma in the Broad Ligament. (Fibrosarcoma ligam. lati.) J. Jacub.
145 Serodiagnosis of Pregnancy. (Biologische Diagnostik der Schwangerschaft nach Abderhalden.) O. Parsamow.
146 Technic for Abdominal Incision. (Längsschnitt oder Querschnitt?) H. Hellendall.

143. **Intracranial Hemorrhage from Birth Traumatism.**—Henschen expatiates on the importance of exact knowledge of the site of the effusion of blood within the cranium, as prompt aspiration of the blood may ward off further injury. The post-mortem findings are misleading as the primary circum-

scribed accumulation of blood spreads throughout the tissues after death. In order to study conditions better, after death from supposed intracranial birth hemorrhage the cadaver should be frozen at once and frozen sections of the skull examined. Physicians should learn to recognize the signs of the injury while the effusion is still circumscribed. If we wait until signs of manifest local or general pressure on the brain have developed in pronounced form, the child is already doomed. An early exploratory puncture of a fontanel may not only reveal the site of the hemorrhage but the child may be saved by this simple measure. Lumbar puncture may give negative findings as no blood may have entered the spinal canal, or injury of the spinal canal may yield blood when there is no intracranial hemorrhage. Puncture of a fontanel is a very simple procedure, he declares, and when properly done seems to be quite harmless, while the child's fate may be sealed by the havoc wrought by the extravasated blood even in less than an hour. Puncture of the anterior or posterior fontanel may reveal a hematoma in the frontal, parietal or occipital subdural space while lumbar puncture or, in dubious cases, puncture between the second and third cervical vertebrae may reveal the dangerous peribulbar hematomas of the cerebellar region. General and systematic application of these comparatively harmless diagnostic measures would represent a great advance, he reiterates, in the treatment of the fetal traumatisms of birth.

Another advance, he adds, would be to discard the method of swinging the child, as this invites intracranial hemorrhage and aggravates it if already present. He suggests as a substitute for Schultze swinging, rhythmic over-pressure artificial respiration, or mechanical artificial respiration in a small negative-pressure cabinet constructed especially for resuscitation of the newly-born. When the subdural hematoma is diagnosed it is a simple matter to aspirate out the blood-stained fluid through the needle in the fontanel. He advises always to supplement this by aspiration of fluid by lumbar puncture as an excess of cerebrospinal fluid is generally secreted in consequence of the irritation from the hematoma, and withdrawal of some of it from below will further aid in reducing the pressure on the brain. If the fluid in the hematoma has clotted, a larger opening may have to be made to clear out the clots maintaining the irritation. The hemorrhage generally stops of itself unless some large sinus is torn, the clots tamponing the bleeding point; the blood of the newly-born is exceptionally rich in fibrin and clots rapidly. Henschen reviews the work of Cushing and others in the line of operative treatment, stating that seven recovered of the sixteen infants treated in this way; that is, nearly 44 per cent. of the otherwise doomed children were saved.

C. C. Simons incised the anterior fontanel along the corner of the parietal bone and after removing the hematoma sutured the incision at once and both of the infants treated in this way recovered. A third child was operated on by this technic by Henschen himself. The child was born in frontal presentation and except for a swelling on the brow seemed normal for three hours; then there were signs of collapse with spasmodic contraction of both arms and exaggerated reflexes. Three hours later puncture of the fontanel disclosed both fluid and coagulated blood, but a clotted hematoma on the other side was overlooked. From this case we learn several important lessons, in particular that the subdural hematoma of the newly born is liable to reaccumulate when the tamponing clot is removed and the dura is replaced without draining. This occurs thus in the newly born the same as in adults, and if the hemorrhage is not definitely arrested by the intervention, the cavity should be drained. In his case the signs of pressure on the brain from the right hematoma subsided completely after its removal but they returned again as the effusion recurred. A second hematoma on the left side escaped detection and was the cause of the eventual fatal outcome. The case shows that coagulated blood may escape detection by the diagnostic exploratory puncture, and it teaches further that with bilateral spasmodic contraction the skull should be opened on both sides, even if the exploratory punctures give negative findings. On account of the early clotting, the needle should be of a large size and used with a cannula, the opening turned downward. The cannula should be introduced parallel to the plane of the bone to avoid injury of vessels. He commends as peculiarly simple and effectual the technic he followed in his case: the triangle of bone formed by the frontal corner of the parietal bone was turned back with the soft parts above, and after removal of the clots the dura was replaced without suturing, the flap replaced and the soft parts sutured.

Zentralblatt für innere Medizin, Leipsic

June 21, XXXIV, No. 25, pp. 633-656

147 *Edema Induced by Large Dose of Alkali. (Sodaödeme.) M. J. Breitmann.

148 The Duodenal Pump in Diagnosis of Duodenal Hemorrhage. Sklodowski.

147. **Soda Dropsy.**—Breitmann noticed that edema developed suddenly in a diabetic boy given large doses of an alkali to correct his acidosis. The elimination of sodium chlorid in this and a number of similar cases was apparently normal, but the children increased remarkably in weight and became almost transparent from the retained fluids. The course of the cases showed that this edema was an unfavorable sign. He had similar experiences with this edema and pseudo-ascites following administration of an alkali in cases of suppurative cystitis, chronic intestinal trouble, in lordotic albuminuria, in gout and with septic processes. As it is frequently important to give an alkali, its dropsy-producing action must be counteracted by combining it with some other drug to keep the patient in the pre-edema stage. His results have been encouraging with sodium acetate or injection of pilocarpin. Belladonna preparations are contra-indicated as they reduce glandular secretion. He warns particularly against permitting this soda dropsy in patients with acidosis, the exudative diathesis or the lymphatic constitution. It may occur with intact kidneys, and it is a question whether the retention of fluids is induced by the alkali itself or indirectly by its combination in the form of sodium chlorid.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 15, XXXIV, No. 71, pp. 743-758

149 The Blood in Pellagra. (Ricerche batteriologiche sul sangue di pellagrosi comuni.) P. Peracci.

June 19, No. 73, pp. 767-774

150 Ileus and Volvulus from Presence of Ascarides; Two Cases; Boys 7 and 9. E. Cartolari.

Policlinico, Rome

June 15, XX, No. 24, pp. 845-876

151 Connection of Staphylococcus with Rat Cancer. (Sui rapporti tra stafilococco aureo e tumore maligno.) P. Mariconda.

152 Extra-Uterine Complicating Normal Pregnancy. P. Fabris.

Riforma Medica, Naples

June 7, XXIX, No. 23, pp. 617-644

153 The Inclusions in the Polymorphonuclear Leukocytes with Surgical Lesions. (I corpi inclusi nei leucociti polimorfonucleati durante il corso delle affezioni chirurgiche.) A. Nacciarone. Commenced in No. 22.

154 Serotherapy of Tuberculosis by the Rectum. (Sull'impiego di siero batteriolitico antitubercolare per via rettale.) G. Romanelli. Commenced in No. 22.

155 Syphilitic Changes in the Monkey Aorta. (Alterazioni aortiche da sifilide nelle scimmie.) P. Boveri.

156 The Diazo Reaction in Surgical Tuberculosis. B. Rosati.

June 14, No. 24, pp. 645-672

157 Experimental Research on the Hypophysis. (Nuovo metodo operativo per lo studio sperimentale della ipofisi cerebrale.) U. Scinicariello.

158 Serodiagnosis of Syphilis. (Ricerche sulla reazione di Hermann-Perutz.) M. Giorgis. Commenced in No. 23.

159 Case of Thrombosis of Cerebellar Arteries. (La trombosi delle arterie bulbari.) A. Salmon.

Ugeskrift for Læger, Copenhagen

May 29, LXXV, No. 22, pp. 929-960

160 Effectual Treatment of Total Paresis. E. Myrop.

June 5, No. 23, pp. 961-1012

161 Prevalence of Syphilis at Copenhagen. S. Lombolt.

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